CITY OF ISSAQUAH

KING COUNTY **WASHINGTON**

BLD15-00138

MOUNT HOOD BOOSTER STATION

PROJECT NO. W01014
APRIL 2015

THIS 16TH DAY OF JULY 2015

THESE PLANS AND/OR SPECIFICATIONS WERE EXAMINED AND APPROVED FOR PERMIT #BLD15-00138 SUBJECT TO REVISIONS AND MARKED HEREIN. ALL PERMITS ARE SUBJECT TO FIELD INSPECTIONS FOR CONFORMANCE WITH THE 2012 INT'L BUILDING CODE AND OTHER PERTINENT LAWS AND ORDINANCES. THE ISSUANCE OF A PERMIT OF APPROVAL OF PLANS AND SPECIFICATIONS SHALL NOT BE CONSTRUED TO BE A PERMIT FOR OR AN APPROVAL OF ANY VIOLATION OF THE LAWS OR THE ORDINANCES OF THE CITY OF ISSAQUAH.

OCCUPANCY: F-2

TYPE OF CONSTRUCTION: V-B

PLANS EXAMINER — Lon Keirsey
TITLE — AUTHORIZED SIGNATURE

IN ADDITION TO THE BUILDING PERMIT, THE FOLLOWING PERMIT(S) IS REQUIRED.

PERMIT(S)

	Plumbing Permit	
	Mechanical Permit	
	Electrical Permit	
	Fire Sprinkler/Alarm	
	King County Health Dept. Permit	
	Irrigation Permit	
	Business License	
	Sign Permit	
	Fire Suppression	
	Boiler Permit L & I	

REQUIRED SPECIAL INSPECTIONS

In addition to the regular inspections, the following checked items will also require special inspection in accordance with Chapter 17 of the International Building Code.

	SPECIAL INSPECTIONS:
	Quality Assurance for Wind Requirements
	Seismic Resistance
X	Soils Compliance Prior to Foundation Inspection
X	Structural Concrete
	Pre-Stressed Concrete
	Structural Welding
	High Strength Bolts
X	Masonry Construction
	Sprayed on Fire Resistant Materials
	Piles
	Pier Foundations
X	Epoxy Anchors / Expansion Anchors
	Flood Elevation Certificate
	Steel Construction
	Wood Construction
	Waterproofing and Building Envelope (RCW 64.34 & 64.55)
	EIFS
	Smoke Control Systems

CITY OFFICIALS

FRED BUTLER
Mayor

EILEEN BARBER **MARY LOU PAULY** **NINA MILLIGAN**

STACY GOODMAN **TOLA MARTS** **JOSHUA SCHAER** **PAUL WINTERSTEIN**

City Council

TINA EGGERS
City Clerk

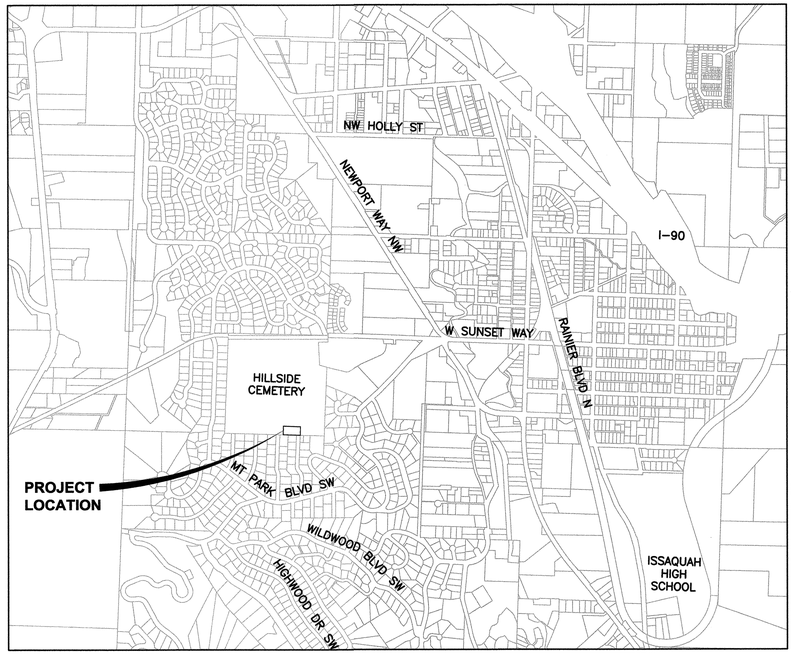
SHELDON LYNNE, P.E.
Public Works

Gray & Osborne, Inc.
CONSULTING ENGINEERS
701 DEXTER AVENUE NORTH SUITE 200
SEATTLE, WASHINGTON 98109 • (206) 284-0860

CITY OF ISSAQUAH - BUILDING REVIEW
APPROVED
ALL WORK SUBJECT TO FIELD INSPECTION

CITY OF ISSAQUAH - ENGINEERING REVIEW
APPROVED
TN 07/13/2015
ALL WORK SUBJECT TO FIELD INSPECTION

SHEET INDEX



PROJECT ADDRESS: 325 MT. HOOD DRIVE, ISSAQUAH WA 98027

VICINITY MAP
SCALE: 1"=1000'

CITY OF ISSAQUAH · BUILDING REVIEW
APPROVED
ALL WORK SUBJECT TO FIELD INSPECTION

PROJECT DATA

PROJECT DESCRIPTION:

NEW ONE STORY CMU BUILDING WITH PREMANUFACTURED WOOD TRUSS ROOF FRAMING, METAL ROOFING, AND CONCRETE FOUNDATION.

BOOSTER STATION BUILDING:
AREA: 20'–0" x 22'–8" = 453.00 S.F.

CODES:

2012 INTERNATIONAL BUILDING CODE

ROOM TYPE	AREA, FT²	USE/OCCUPANCY	CONSTRUCTION TYPE
PUMP ROOM	398 S.F.	F–2	VB

0 1" 2"
TWO INCHES AT FULL SCALE.
IF NOT, SCALE ACCORDINGLY

Gray & Osborne, Inc.
CONSULTING ENGINEERS
701 DEXTER AVENUE NORTH SUITE 200
SEATTLE, WASHINGTON 98109 • (206) 284–0860

DATE: APR 2015
SCALE: NOTED
DRAWN: MAN
CHECKED: JND
APPROVED: RLP

No.	REVISION	DATE	APPD

HUSSEIN L. PORTER — STATE OF WASHINGTON — 35688 — REGISTERED PROFESSIONAL ENGINEER
JOSEPH NASH DALANEY — STATE OF WASHINGTON — 46527 — REGISTERED PROFESSIONAL ENGINEER

CITY OF ISSAQUAH
KING COUNTY
WASHINGTON

MOUNT HOOD BOOSTER STATION

SHEET INDEX AND VICINITY MAP

SHEET: G-1
1 OF 45

JOB NO.: 14543
DWG: LEGEND

TEXT ABBREVIATIONS

AVE	AVENUE
AC	ASBESTOS CEMENT PIPE
ADJ	ADJUST
ALT	ALTERNATE
ALUM	ALUMINUM
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE
ASPH	ASPHALT
ASTM	AMERICAN SOCIETY OF TESTING AND MATERIALS
ASSY	ASSEMBLY
ATB	ASPHALT TREATED BASE
BF	BLIND FLANGE
BLDG	BUILDING
BLK	BLOCK
BO	BLOW OFF
CTR	CENTER
CB	CATCH BASIN
CI	CAST IRON
℄	CENTER LINE
CLR	CLEARANCE
CMP	CORRUGATED METAL PIPE
CMU	CONCRETE MESONRY UNIT
CO	CLEANOUT
CONC	CONCRETE
C	CONDUIT
CONN	CONNECTION
CONTR	CONTRACTOR
CONT	CONTINUOUS
CPEP	CORRUGATED POLYETHYLENE PIPE
CPLG	COUPLING
CY	CUBIC YARD
CONT	CONTINUED
CL	CLASS
CF	CUBIC FEET
CFS	CUBIC FEET PER SECOND
DC	DEGREE OF CURVATURE
DI	DUCTILE IRON
DIA	DIAMETER
DOT	DEPARTMENT OF TRANSPORTATION
DIM	DIMENSION
DWGS	DRAWING(S)
D	DRAIN
EOA	EDGE OF ASPHALT
E	EAST
EA	EACH
EL	ELEVATION
ELEC	ELECTRICAL
EXIST	EXISTING
FIG	FIGURE
FEP	FLOURINATED ETHYLENE PROPYLENE
FIN	FINISHED
FL	FLANGE
FO	FIBER OPTIC
FT	FEET
F	FORCE MAIN
GA	GAUGE
GALV	GALVANIZED
GI	GALVANIZED IRON
GV	GATE VALVE
HDPE	HIGH DENSITY POLYETHYLENE PIPE
HMA	HOT MIX ASPHALT
HP	HORSE POWER
ID	INSIDE DIAMETER
IE	INVERT ELEVATION
INV	INVERT
IN	INCH
K	KILOWATT
L	LENGTH
LB	POUND
LF	LINEAR FEET
MAX	MAXIMUM
MFR	MANUFACTURER
MH	MANHOLE
MIN	MINIMUM
MJ	MECHANICAL JOINT
MISC	MISCELLANEOUS
N	NORTH
NO	NUMBER
NTS	NOT TO SCALE
OC	ON CENTER
OD	OUTSIDE DIAMETER
OE	OVERHEAD ELECTRICAL
PE	PLAIN END
PERF	PERFORATED
PL	PLATE
PP	POWER POLE
PVC	POLYVINYL CHLORIDE
PVMT	PAVEMENT
QTY	QUANTITY
RET	RETAINING
R	RADIUS
RED	REDUCER
REINF	REINFORCE
REQD	REQUIRED
R/W	RIGHT-OF-WAY
RJ	RESTRAINED JOINT
SL	SLOPE
S	SOUTH
SCH	SCHEDULE
SF	SQUARE FEET
SHT	SHEET
SPECS	SPECIFICATIONS
SQ	SQUARE
SS	STAINLESS STEEL
STA	STATION
STD	STANDARD
TB	THRUST BLOCK
TC	TOP OF CURB
TDH	TOTAL DYNAMIC HEAD
TEL	TELEPHONE
THRD	THREADED
THRU	THROUGH
TYP	TYPICAL
VERT	VERTICAL
W	WEST
W/	WITH
W/O	WITHOUT

SYMBOL LEGEND

EXISTING	PROPOSED	DESCRIPTION
		CURB & GUTTER
		ASPHALT PAVEMENT
		GRAVEL SURFACING
		CONCRETE SURFACING
		CONCRETE SIDEWALK
		RIGHT-OF-WAY LINE
		CENTERLINE OF ROADWAY
		PROPERTY LINE
		PERMANENT EASEMENT LINE
		TEMPORARY EASEMENT LINE
10	10	CONTOUR LINE (MAJOR & MINOR)
8	8	
UE		BURIED ELECTRICAL
OE		OVERHEAD ELECTRICAL
T		TELEPHONE
C		COMMUNICATIONS
W	W	WATER MAIN (SIZE AS NOTED)
G		GAS MAIN
I		IRRIGATION LINE
S	S	SANITARY SEWER (PROPOSED-PIPE OD)
D	D	STORM DRAIN (SIZE AS NOTED)
FO	FO	FIBER OPTIC
		DITCH
D	D	CULVERT (SIZE & TYPE AS NOTED)
x	x	FENCE (TYPE AS NOTED)
x x x	x x x	FENCE (WITH GATE)
P		POWER VAULT
T		TELEPHONE MANHOLE
S	S	MANHOLE (S=SANITARY AND D=STORM)
○	●	CLEANOUT
□	■	TYPE 1 CATCH BASIN OR CURB INLET
		TYPE 2 CATCH BASIN
		POLE WITH GUY WIRE
		POWER / TELEPHONE / GUY POLE
		LUMINAIRE
		YARD LIGHT
		JUNCTION BOX (AS NOTED)
		GATE VALVE
		BUTTERFLY VALVE
		WATER METER
		FIRE HYDRANT
		YARD HYDRANT
△	▲	REDUCER
		THRUST BLOCK
		TRANSITION COUPLING OR FLANGE COUPLING ADAPTER
		CAP/PLUG
		AIR RELEASE ASSEMBLY
		BLOW-OFF
W	W	WATER VAULT

EXISTING	PROPOSED	DESCRIPTION
		MAIL BOX (NOTED)
		SIGN
		RIP RAP
	TOE OF FILL / F / C / TOP OF CUT	GRADING
10" 10"	10" 10"	TREE
		SHRUBS
		BUILDINGS
		ROCK WALL
× 12.34	× 12.34	ELEVATION POINT
		MONUMENT
		BORING AND TEST PIT LOCATIONS
		CONTROL POINT
		BENCH MARK
	1 / 1	DETAIL NUMBER
		REFERENCE SHEET

0 1" 2"

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IF NOT, SCALE ACCORDINGLY

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JOSEF NASH DALAEN — STATE OF WASHINGTON — 34527 — REGISTERED PROFESSIONAL ENGINEER — 4/27/15

CITY OF ISSAQUAH
WASHINGTON
KING COUNTY

MOUNT HOOD BOOSTER STATION

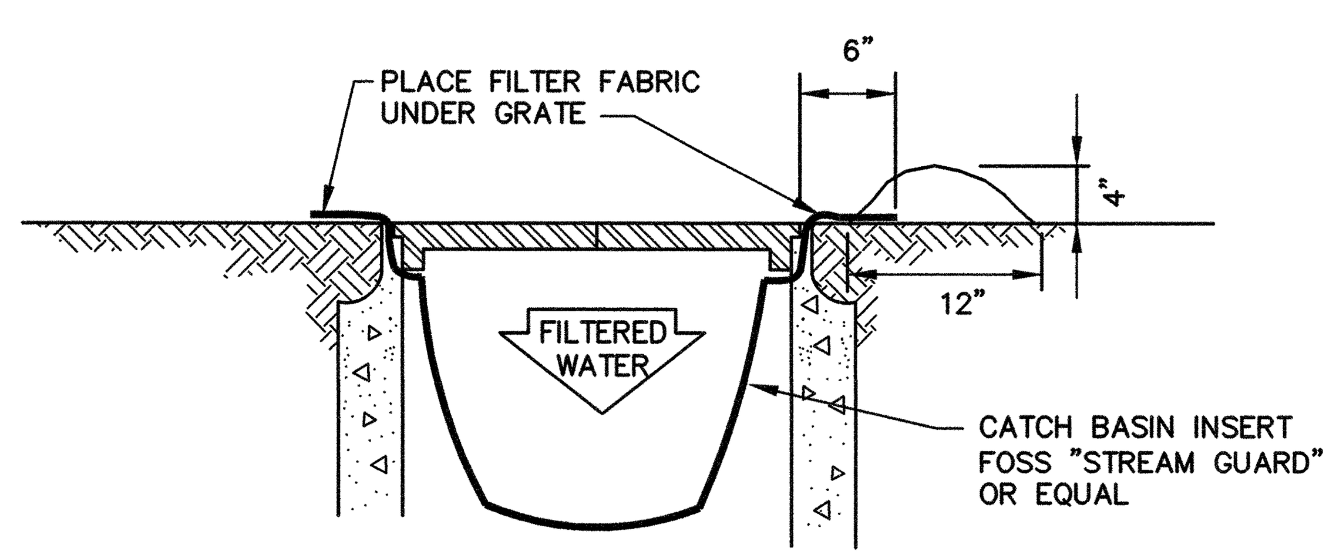
ABBREVIATIONS AND SYMBOL LEGEND

SHEET: G-2
2 OF 45

JOB NO.: 14543
DWG: LEGEND

TEMPORARY EROSION AND SEDIMENT CONTROL (TESC) PLAN NOTES FOR CIP PROJECTS:

1. TESC COORDINATION
   a. A CERTIFIED EROSION AND SEDIMENT CONTROL LEAD (CESCL) SHALL BE DESIGNATED BY THE CONTRACTOR AS THE PROJECT'S TESC SUPERVISOR AND SHALL BE RESPONSIBLE FOR THE PERFORMANCE, MAINTENANCE, AND REVIEW OF TESC MEASURES AND FOR COMPLIANCE WITH ALL PERMIT CONDITIONS RELATED TO TESC. THE TESC SUPERVISOR SHALL BE CERTIFIED BY THE DEPARTMENT OF ECOLOGY'S TRAINING REQUIREMENT.
   b. CONTRACTOR'S REVISED TESC PLANS THE TESC MEASURES SHOWN ON THIS PLAN ARE THE MINIMUM REQUIREMENTS FOR ANTICIPATED SITE CONDITIONS. THE CONTRACTOR MAY REVISE THE TESC MEASURES SHOULD THEY DETERMINE THAT THERE IS A NEED TO BE MODIFIED TO COMPLY WITH THE PERMIT CONDITIONS OR IF THERE IS A MORE EFFECTIVE AND EFFICIENT WAY TO MEET THE PERFORMANCE OBJECTIVES FOR THE DURATION OF THE PROJECT.
   c. THE CONTRACTOR SHALL CONSULT WITH THE CITY PRIOR TO IMPLEMENTING ANY CHANGES TO ENSURE COMPLIANCE WITH CITY PERMITS, THE CONTRACT, AND THAT THE CHANGES DO NOT NEGATIVELY IMPACT PROPERTY OR PUBLIC SAFETY.
   d. AN ONSITE TESC PRECONSTRUCTION MEETING SHALL BE HELD BEFORE ANY WORK BEGINS TO REVIEW IMPLEMENTATION OF THE TESC PLANS AND REPORT.
2. INITIAL TESC INSTALLATION
   a. ALL TESC FACILITIES SHOWN ON THE PLANS SHALL BE INSTALLED PRIOR TO OR IN CONJUNCTION WITH ALL CLEARING AND GRADING SO AS TO ENSURE THAT THE SEDIMENT–LADEN WATER DOES NOT ENTER THE CITY DRAINAGE SYSTEM, SURFACE WATERS, OR WETLANDS. ADJACENT PROPERTIES SHALL BE PROTECTED FROM SEDIMENT–LADEN RUNOFF. IF NOT SPECIFICALLY SHOWN ON THE PLANS OR THE TESC REPORT, INSTALLATION SHALL BE DONE IN ACCORDANCE WITH APPENDIX D OF THE KING COUNTY SURFACE WATER DESIGN MANUAL, "EROSION AND SEDIMENT CONTROL STANDARDS", OR AS DIRECTED BY THE CITY.
   b. CLEARING LIMITS AND TREE PROTECTION BOUNDARIES SHOWN ON THE PLANS SHALL BE CLEARLY FLAGGED BY SURVEY TAPE OR FENCING PRIOR TO CONSTRUCTION. NO DISTURBANCE BEYOND THE CLEARING LIMITS IS ALLOWED.
   c. STABILIZED CONSTRUCTION ENTRANCES SHOWN ON THE PLANS SHALL BE INSTALLED AT THE BEGINNING OF CONSTRUCTION AND MAINTAINED FOR THE DURATION OF THE PROJECT. ONSITE ROADS AND PAVED AREAS SHALL BE KEPT CLEAN TO MINIMIZE TURBIDITY IN RUNOFF. ADDITIONAL MEASURES, SUCH AS CONSTRUCTED WHEEL WASH SYSTEMS OR WASH PADS, IF SHOWN ON THE PLANS, ARE REQUIRED TO ENSURE SEDIMENT IS NOT TRACKED OUT TO CITY STREETS. ANY DIRT TRACKED ONTO CITY STREETS SHALL BE SWEPT AS NEEDED OR AS DIRECTED BY THE CITY OF ISSAQUAH. STREET SWEEPING IS NOT CONSIDERED A TESC MEASURE.
   d. COVERING OF EXPOSED SOILS, INCLUDING ROADWAY EMBANKMENTS, THAT WILL NOT BE DISTURBED FOR TWO CONSECUTIVE DAYS DURING THE WET SEASON (OCT 1 TO APRIL 30) OR SEVEN DAYS DURING THE DRY SEASON (MAY 1 TO SEPT 30) SHALL BE DONE USING APPROVED TESC METHODS (E.G. SEEDING, MULCHING, PLASTIC COVERING, ETC.). THESE TIME LIMITS MAY BE MODIFIED BY THE CITY TO ADDRESS SPECIFIC SITE AND WEATHER CONDITIONS.
   e. COLLECTION AND TREATMENT OF RUNOFF USING DITCHES, SWALES, OR PIPES IS REQUIRED TO ROUTE STORMWATER TO COLLECTION POINTS WHERE IT IS TREATED PRIOR TO INFILTRATION OR DISCHARGE OFFSITE. WHEN SHOWN ON THE PLANS, TEMPORARY STORAGE FACILITIES SUCH AS PONDS AND TANKS SHALL BE INSTALLED AT THE ONSET OF CONSTRUCTION, REGARDLESS OF THE TIME OF YEAR.
3. ROUTINE TESC MAINTENANCE
   a. MAINTENANCE OVER DURATION OF PROJECT. ALL TESC MEASURES SHALL BE MAINTAINED BY THE TESC SUPERVISOR FOR THE DURATION OF CONSTRUCTION, UNTIL FINAL LANDSCAPING OR OTHER PERMANENT SITE STABILIZATION IS COMPLETE
   b. ROUTINE INSPECTIONS. THE TESC FACILITIES SHALL BE INSPECTED BY THE TESC SUPERVISOR DAILY OR MORE OFTEN DURING RAINFALL, AND MAINTAINED TO ENSURE PROPER FUNCTIONING. WRITTEN DOCUMENTATION IS REQUIRED FOR DISCHARGES ABOVE 25 NTUS AND SHALL BE READILY AVAILABLE AT THE PROJECT SITE.
   c. OFFSITE PUMPING. THE TESC SUPERVISOR SHALL NOTIFY THE CITY OF ISSAQUAH PRIOR TO PUMPING ANY DISCHARGE OFFSITE OR TO CRITICAL AREAS.
   d. INACTIVE SITES. TESC FACILITIES ON INACTIVE SITES SHALL BE INSPECTED AND MAINTAINED A MINIMUM OF ONCE A MONTH OR WITHIN 24 HOURS FOLLOWING A STORM EVENT.
   b. PREPARATION FOR WET SEASON. PRIOR TO THE BEGINNING OF THE WET SEASON (OCT 1), ALL DISTURBED AREAS SHALL BE REVIEWED TO IDENTIFY WHICH ONES CAN BE SEEDED OR OTHERWISE COVERED IN PREPARATION FOR THE WINTER RAINS. IF COVER MEASURES ARE NOT ESTABLISHED BY OCT 1, ADDITIONAL TESC MEASURES SHALL BE REQUIRED.
4. TURBIDITY MONITORING
   a. MONITORING RESPONSIBILITY. THE CITY'S INSPECTOR WILL MEASURE THE TURBIDITY OF STORMWATER LEAVING THE SITE AT THE DESIGNATED MONITORING POINT(S) TO VERIFY COMPLIANCE WITH TURBIDITY DISCHARGE LIMITS THAT ARE SPECIFIED BELOW.
   b. MONITORING LOCATION. THE TURBIDITY MONITORING LOCATION, WHERE THE INSPECTOR WILL MEASURE TURBIDITY FOR COMPLIANCE, IS SHOWN ON THE TESC PLANS. FOR PROJECT SITES WHERE DESIGNATING A MONITORING POINT IS NOT FEASIBLE (E.G. FLAT SITES OR LINEAR UTILITY PROJECTS), THE MONITORING LOCATIONS WILL BE AT THE DISCRETION OF THE INSPECTOR.
   c. 25 NTU ACTION LEVEL. THE TESC SUPERVISOR SHALL BE NOTIFIED OF DISCHARGES ABOVE 25 NTUS. THE TESC SUPERVISOR SHALL REVIEW AND MODIFY THE TESC MEASURES AS NEEDED TO KEEP DISCHARGES FROM THE SITE BELOW 25 NTUS.
   d. 100 NTU DISCHARGE LIMIT. THE CONTRACTOR IS RESPONSIBLE FOR INSTALLING AND MAINTAINING TESC MEASURES SO THAT DISCHARGE FROM THE PROJECT SITE SHALL NOT EXCEED 100 NTUS AT ALL TIMES UP TO THE 10 YEAR/24 HOUR STORM EVENT. THIS EVENT IS DEFINED AS 3.5 INCHES OF RAINFALL OVER A 24 HOUR PERIOD, AS MEASURED AT THE CITY'S RAIN GAGE. DATA FROM THIS RAIN GAGE IS POSTED ON THE CITY'S WEBSITE.
5. OTHER POLLUTION CONTROL MEASURES
   a. POLLUTION CONTROL. THE CONTRACTOR SHALL IMPLEMENT ALL REQUIREMENTS OF THE TESC REPORT AND STORMWATER POLLUTION PREVENTION PLAN, INCLUDING STORAGE AND HANDLING OF HAZARDOUS MATERIALS, CONCRETE HANDLING AND WASTEWATER DISPOSAL, SPILL KITS AND SPILL RESPONSE, AND OTHER MEASURES AS NEEDED.
   b. CONTROL OF PROCESS WATER. THE CONTRACTOR SHALL USE THE APPROPRIATE POLLUTION CONTROL MEASURES TO ENSURE THAT NO LIQUID PRODUCTS OR CONTAMINATED WATER SUCH AS RUNOFF FROM CONCRETE SLURRY (KNOWN AS PROCESS WATER) ENTERS THE STORM DRAINAGE SYSTEM, SURFACE WATERS, OR OTHERWISE LEAVES THE PROJECT SITE.
6. FINAL SITE STABILIZATION
   a. FINAL STABILIZATION. THE CONTRACTOR SHALL INSTALL ALL TESC NEEDED FOR FINAL STABILIZATION AT COMPLETION OF FINISH GRADING. THIS SHALL BE DONE WITHIN TWO CONSECUTIVE DAYS DURING THE WET SEASON (OCT 1 TO APRIL 30), SEVEN DAYS DURING THE DRY SEASON (MAY 1 TO SEPT 30) OR AS DIRECTED BY THE CITY.
   b. REMOVAL OF TESC FACILITIES. THE CONTRACTOR SHALL REMOVE ALL TESC FACILITIES, EXCEPT THOSE THAT WILL REMAIN (SUCH AS SEED AND MULCH) AFTER FINAL STABILIZATION OF THE SITE.
7. ENFORCEMENT
   a. NON–COMPLIANCE WITH CONTRACT REQUIREMENTS, PERFORMANCE OBJECTIVES AND PERMITS. FAILURE TO PROVIDE AND MAINTAIN APPROVED TESC FACILITIES, DISCHARGES THAT EXCEED THE 100 NTU TURBIDITY LIMIT, OR OTHER FAILURES TO COMPLY WITH THE CONTRACT OR PERMITS ARE CONSIDERED VIOLATIONS OF THE CONTRACT AND MAY BE SUBJECT TO SUSPENSION OF WORK AND MONETARY PENALTIES.
   b. MAINTENANCE OF TESC DURING SUSPENSION. IF WORK IS ORDERED TO BE SUSPENDED, THE CONTRACTOR SHALL CONTINUE TO CONTROL EROSION, POLLUTION, AND RUNOFF DURING THE SHUTDOWN AND WORKING DAYS WILL BE CONTINUED TO BE COUNTED.



1 TYP. **STORM DRAIN INLET PROTECTION**
NOT TO SCALE

PROTECTION OF THE ENVIRONMENT:

NO CONSTRUCTION RELATED ACTIVITY SHALL: CONTRIBUTE TO THE DEGRADATION OF THE ENVIRONMENT, ALLOW MATERIAL TO ENTER SURFACE OR GROUND WATERS, OR ALLOW PARTICULATE EMISSIONS TO THE ATMOSPHERE, WHICH EXCEED STATE OR FEDERAL STANDARDS. ANY ACTIONS THAT POTENTIALLY ALLOW A DISCHARGE TO STATE WATERS MUST HAVE PRIOR APPROVAL OF THE STATE OF WASHINGTON, DEPARTMENT OF ECOLOGY.

GENERAL NOTES:

1. ALL MAPPING AND LOCATION OF EXISTING UTILITIES SHOWN HEREON HAVE BEEN ESTABLISHED BY FIELD SURVEY OR OBTAINED FROM AVAILABLE RECORDS AND SHOULD THEREFORE BE CONSIDERED APPROXIMATE ONLY AND NOT NECESSARY COMPLETE. IT IS SOLE RESPONSIBILITY OF THE CONTRACTOR TO INDEPENDENTLY VERIFY THE ACCURACY OF ALL UTILITY LOCATIONS SHOWN AND TO DISCOVER AND AVOID ANY OTHER UTILITIES NOT SHOWN HEREON WHICH MAY BE AFFECTED BY THE IMPLEMENTATION OF THIS PLAN. THE CONTRACTOR SHALL CONTACT THE UTILITIES UNDERGROUND LOCATION SERVICE PRIOR TO CONSTRUCTION. THE OWNER OR HIS REPRESENTATIVE SHALL BE IMMEDIATELY CONTACTED IF A UTILITY CONFLICT EXISTS.
2. THE CONTRACTOR SHALL PROVIDE CONTINUAL, RATHER THAN PERIODIC MAINTENANCE AND CLEANING OF THE WORK AREAS, ROADS AND FACILITIES USED BY THE CONTRACTOR AND HIS SUBCONTRACTORS.
3. CONSTRUCTION EQUIPMENT SHALL BE CONTINUOUSLY MAINTAINED IN TOP WORKING ORDER AND FREE OF LEAKING FLUIDS. EQUIPMENT WHICH IN THE SOLE OPINION OF THE ENGINEER IS IN POOR OPERATING CONDITION, SHALL BE REMOVED FROM THE SITE.
4. A COPY OF APPROVED PLANS MUST BE ON THE JOB SITE WHENEVER CONSTRUCTION IS IN PROGRESS.
5. USE AND RESTORATION OF PRIVATE PROPERTY WILL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
6. BEDDING AND TRENCH COMPACTION: ALL SUBGRADE, BEDDING & TRENCH BACKFILL SHALL BE COMPACTED TO 95% MINIMUM OF MODIFIED PROCTOR.
7. CONTRACTOR IS RESPONSIBLE FOR VERIFYING EXISTING CONNECTIONS
8. THIS MAP GRAPHICALLY REPRESENTS EXISTING CONDITIONS AT THE TIME OF THIS SURVEY ONLY. IT INCLUDES ALL READILY OBSERVABLE ABOVE–GROUND EVIDENCE OF BUILDINGS, STRUCTURES AND IMPROVEMENTS SITUATED ON THE ABOVE PREMISES. ADDITIONAL FEATURES, IMPROVEMENTS, REMOVALS AND ALTERATIONS MAY HAVE OCCURRED SINCE THE TIME OF THIS SURVEY.
9. THE UNDERGROUND UTILITIES SHOWN HEREON HAVE BEEN LOCATED FROM A COMBINATION OF: 1.) THE FIELD SURVEYED LOCATION OF VISIBLE SURFACE UTILITY STRUCTURES SUCH AS MANHOLE LIDS, CATCH BASIN GRATES, GAS AND WATER VALVE LIDS, ETC 2.) THE FIELD SURVEYED LOCATION OF PAINT OR OTHER MARKS OR MARKERS PLACED BY AN UNDERGROUND UTILITY LOCATOR SERVICE.
10. UTILITY INVERT ELEVATIONS AND PIPE / FLOWLINE DIAMETERS SHOWN HEREON ARE BASED ON OBSERVATIONS FROM THE TOP OF THE UTILITY COVER AND ARE APPROXIMATE ONLY. FOR SAFETY REASONS NO PHYSICAL ENTRY INTO THE UTILITY STRUCTURE WAS PERFORMED DURING THE COURSE OF THIS SURVEY.

SITE SPECIFIC NOTES:

1. DO NOT ALLOW OR CAUSE ANY LIQUID, RUNOFF, OR MATERIALS TO DRAIN, SPILL, OR DUMP OUTSIDE OF ESTABLISHED WORK ZONE, ESPECIALLY OVER NORTHERN BOUNDARY HILLSIDE.

0 1" 2"
TWO INCHES AT FULL SCALE. IF NOT, SCALE ACCORDINGLY

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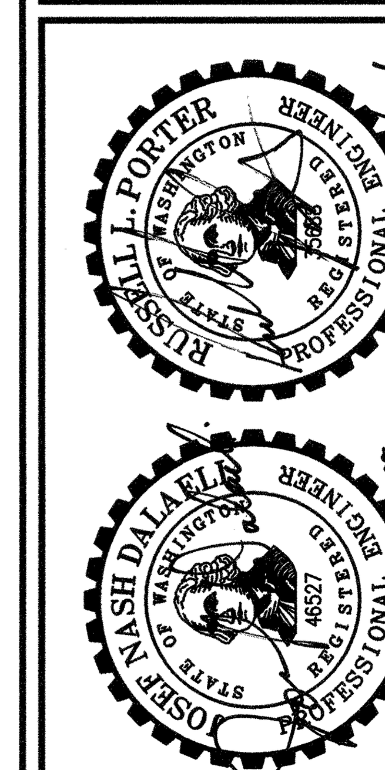


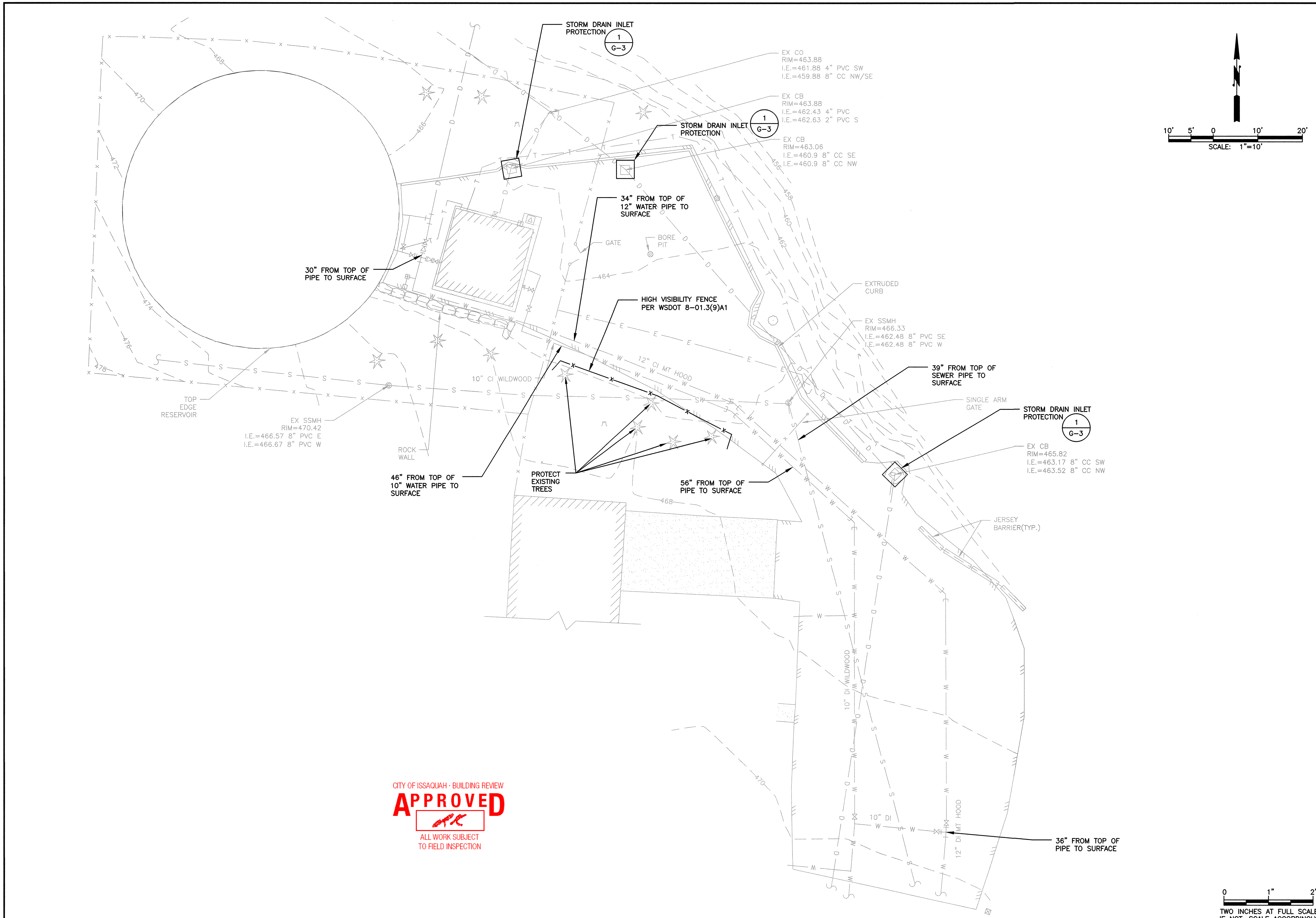
CITY OF ISSAQUAH
KING COUNTY WASHINGTON

MOUNT HOOD BOOSTER STATION

TESC NOTES AND DETAILS

SHEET: **G-3**
3 OF **45**

JOB NO.: 14543
DWG: TESC DETAILS



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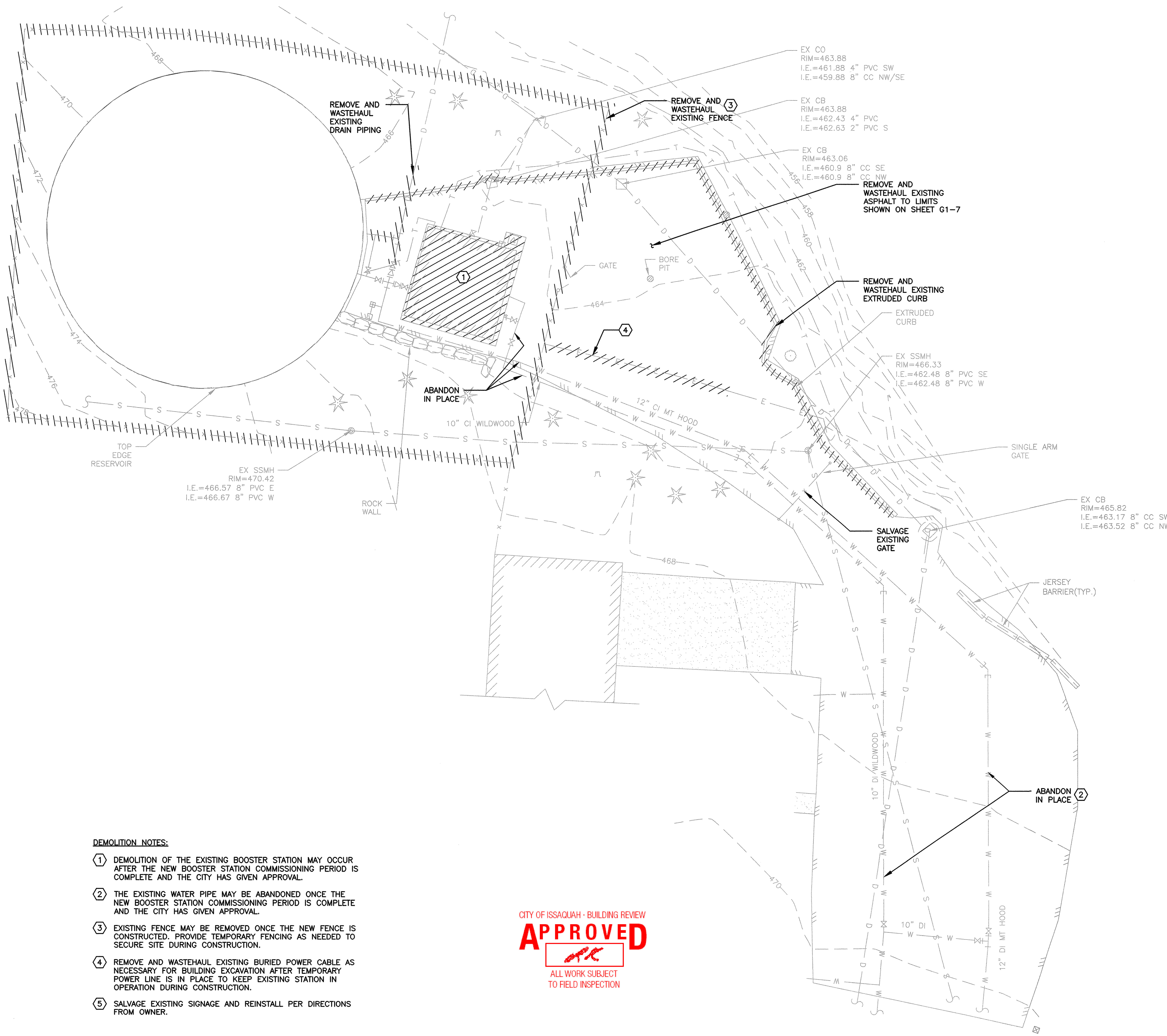
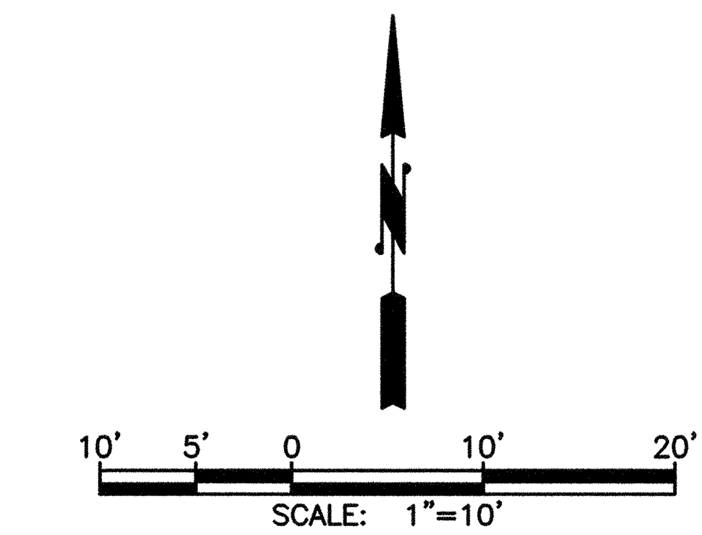
CITY OF ISSAQUAH
KING COUNTY WASHINGTON
MOUNT HOOD BOOSTER STATION
EXISTING SITE AND TESC PLAN

SHEET: **G1-1**
4 OF **45**
JOB NO.: 14543
DWG: EX_SITEPLAN

:\ISSAQUAH\14543 mt hood bps\Planset\G-Sheets\EX_SITEPLAN.dwg, 4/27/2015 11:04:45 AM, mnagel





DEMOLITION NOTES:

1. DEMOLITION OF THE EXISTING BOOSTER STATION MAY OCCUR AFTER THE NEW BOOSTER STATION COMMISSIONING PERIOD IS COMPLETE AND THE CITY HAS GIVEN APPROVAL.
2. THE EXISTING WATER PIPE MAY BE ABANDONED ONCE THE NEW BOOSTER STATION COMMISSIONING PERIOD IS COMPLETE AND THE CITY HAS GIVEN APPROVAL.
3. EXISTING FENCE MAY BE REMOVED ONCE THE NEW FENCE IS CONSTRUCTED. PROVIDE TEMPORARY FENCING AS NEEDED TO SECURE SITE DURING CONSTRUCTION.
4. REMOVE AND WASTEHAUL EXISTING BURIED POWER CABLE AS NECESSARY FOR BUILDING EXCAVATION AFTER TEMPORARY POWER LINE IS IN PLACE TO KEEP EXISTING STATION IN OPERATION DURING CONSTRUCTION.
5. SALVAGE EXISTING SIGNAGE AND REINSTALL PER DIRECTIONS FROM OWNER.

CITY OF ISSAQUAH · BUILDING REVIEW
APPROVED
ALL WORK SUBJECT TO FIELD INSPECTION

0 1" 2"
TWO INCHES AT FULL SCALE. IF NOT, SCALE ACCORDINGLY

Gray & Osborne, Inc.
CONSULTING ENGINEERS
701 DEXTER AVENUE NORTH SUITE 200
SEATTLE, WASHINGTON 98109 • (206) 284-0860

DATE:	APR 2015
SCALE:	NOTED
DRAWN:	MAN
CHECKED:	JND
APPROVED:	RLP

No.	REVISION	DATE	APPD

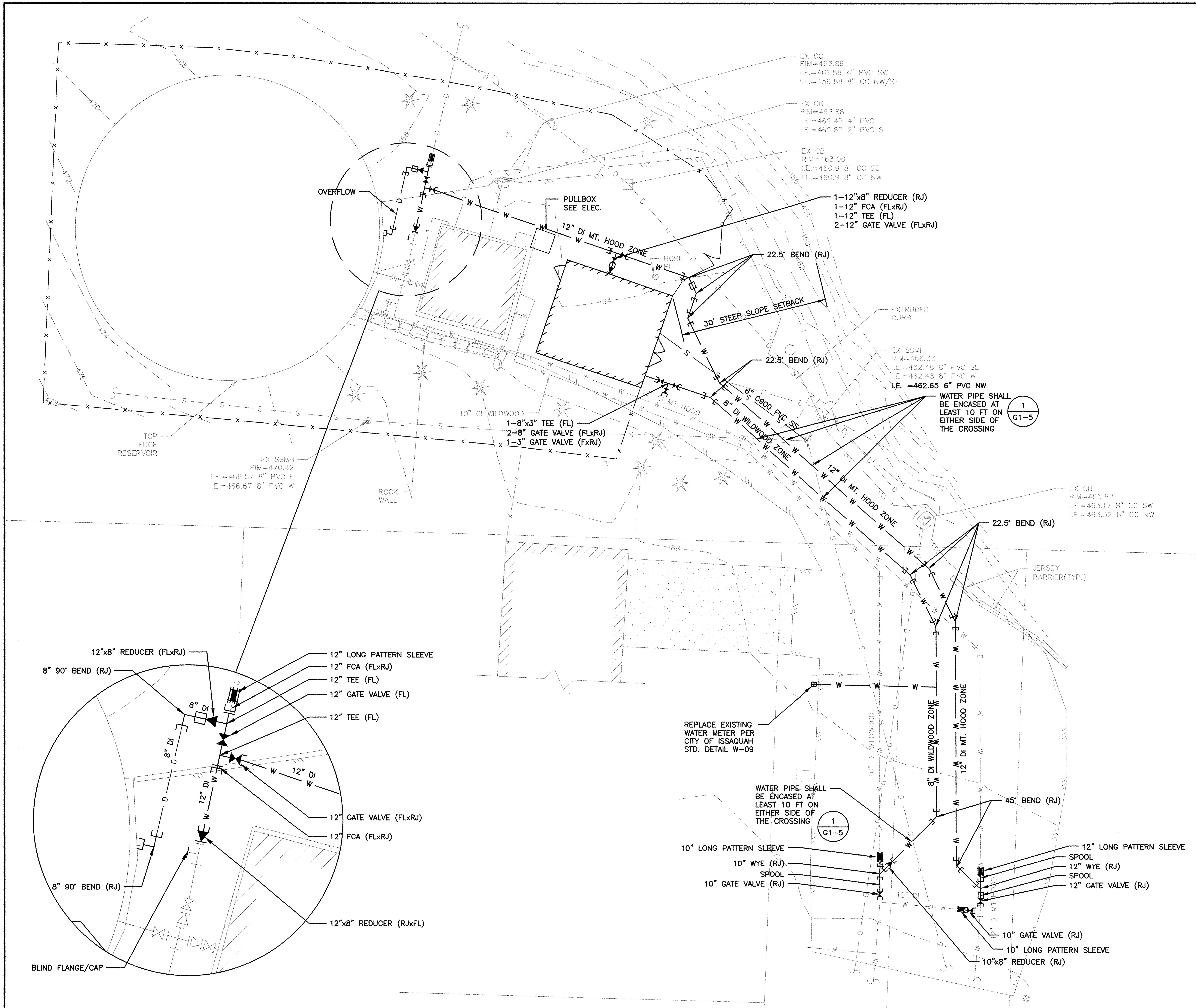
RUSSELL L. PORTER · STATE OF WASHINGTON · 35688 · REGISTERED PROFESSIONAL ENGINEER

JOSEF NASH DALAEI · STATE OF WASHINGTON · 46527 · REGISTERED PROFESSIONAL ENGINEER

CITY OF ISSAQUAH
KING COUNTY WASHINGTON
MOUNT HOOD BOOSTER STATION
DEMOLITION PLAN

SHEET: G1-2
5 OF 45
JOB NO.: 14543
DWG: EX_SITEPLAN

I:\ISSAQUAH\14543 mt hood bps\Planset\G-Sheets\EX_SITEPLAN.dwg, 4/27/2015 11:04:58 AM, mnagel



CITY OF ISSAQUAH · PLANNING REVIEW
APPROVED
ALL WORK SUBJECT TO FIELD INSPECTION

NOTES:

1. PIPE TRENCHES SHALL BE PER CITY OF ISSAQUAH STANDARD DETAIL G–01.
2. ALL WETTED DRINKING WATER COMPONENTS SHALL BE NSF 372 COMPLIANT.
3. WATER SERVICES SHALL BE PER CITY OF ISSAQUAH STANDARD DETAIL W–09.
4. ALL PIPE, JOINTS, AND CONNECTIONS SHALL BE RESTRAINED CL–52 DUCTILE IRON.
5. CONTRACTOR TO VERIFY LOCATION, DEPTH, SIZE, AND MATERIAL OF EXISTING WATER MAIN CONNECTION POINTS AND MODIFY FITTINGS IF NECESSARY.
6. CONTRACTOR TO MAINTAIN ACCESS TO EXISTING BOOSTER STATION DURING CONSTRUCTION.

0 1" 2"
TWO INCHES AT FULL SCALE. IF NOT, SCALE ACCORDINGLY

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No.	REVISION	DATE	APPD

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JOSEF NASH DALAELI · STATE OF WASHINGTON · REGISTERED PROFESSIONAL ENGINEER · 46527

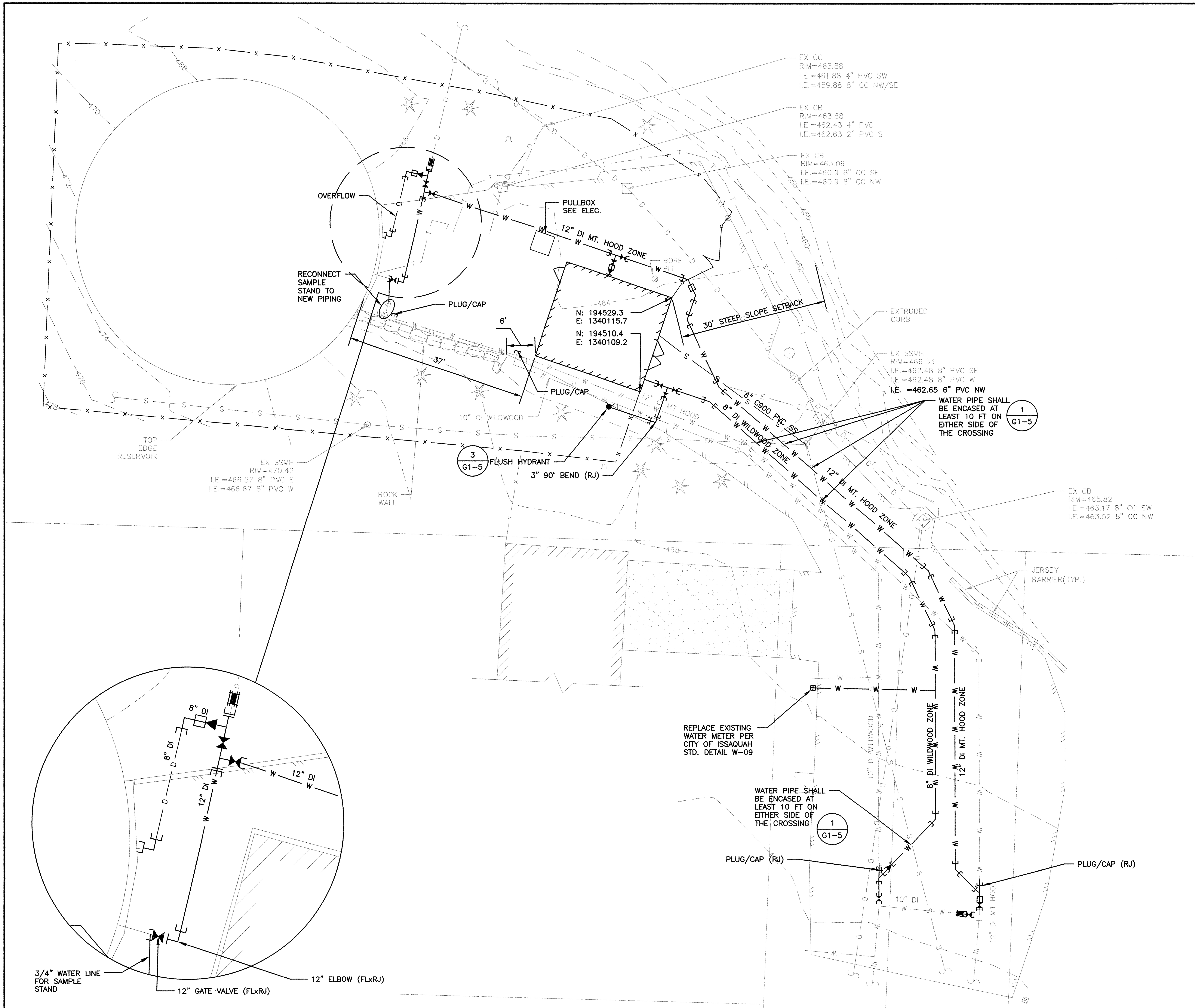
CITY OF ISSAQUAH
KING COUNTY WASHINGTON

MOUNT HOOD BOOSTER STATION

INTERMEDIATE PROPOSED SITE PLAN

SHEET: G1-3
6 OF 45

JOB NO.: 14543
DWG: PRO_SITEPLAN



CITY OF ISSAQUAH · PLANNING REVIEW
APPROVED
ALL WORK SUBJECT TO FIELD INSPECTION

NOTES:

1. PIPE TRENCHES SHALL BE PER CITY OF ISSAQUAH STANDARD DETAIL G-01.
2. ALL WETTED DRINKING WATER COMPONENTS SHALL BE NSF 372 COMPLIANT.
3. WATER SERVICES SHALL BE PER CITY OF ISSAQUAH STANDARD DETAIL W-09.
4. ALL PIPE, JOINTS, AND CONNECTIONS SHALL BE RESTRAINED CL-52 DUCTILE IRON.
5. CONTRACTOR TO VERIFY LOCATION, DEPTH, SIZE, AND MATERIAL OF EXISTING WATER MAIN CONNECTION POINTS AND MODIFY FITTINGS IF NECESSARY.

0 1" 2"
TWO INCHES AT FULL SCALE. IF NOT, SCALE ACCORDINGLY

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DATE: APR 2015
SCALE: NOTED
DRAWN: MAN
CHECKED: JND
APPROVED: RLP

No.	REVISION	DATE	APPD

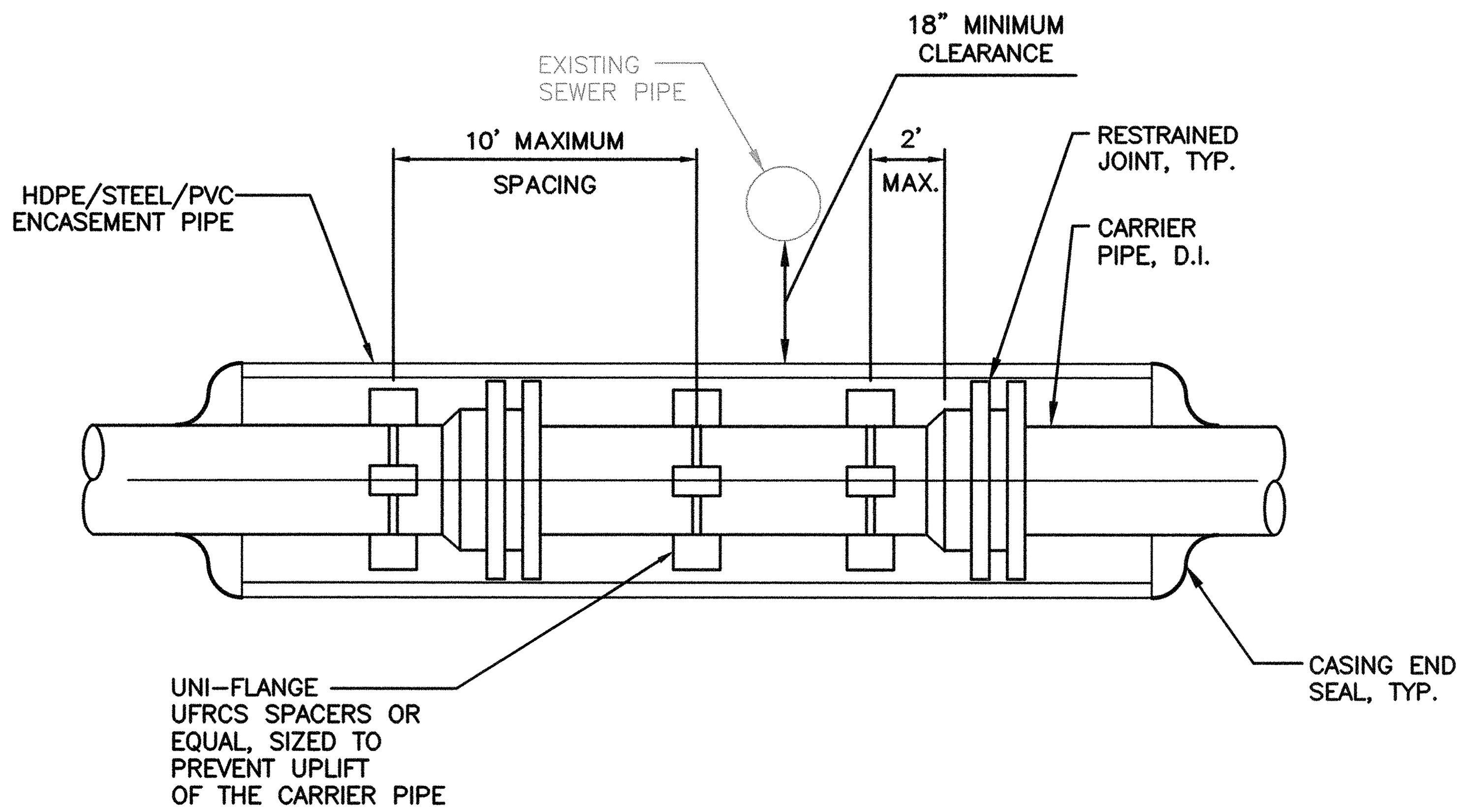
RUSSELL L. PORTER · STATE OF WASHINGTON · 35688 · REGISTERED PROFESSIONAL ENGINEER · 4/27/15
JOSEF NASH DALAELI · STATE OF WASHINGTON · 46527 · REGISTERED PROFESSIONAL ENGINEER · 4-27-15

CITY OF ISSAQUAH
KING COUNTY WASHINGTON

MOUNT HOOD BOOSTER STATION

FINAL PROPOSED SITE PLAN

SHEET: **G1-4**
7 OF **45**
JOB NO.: 14543
DWG: PRO_SITEPLAN

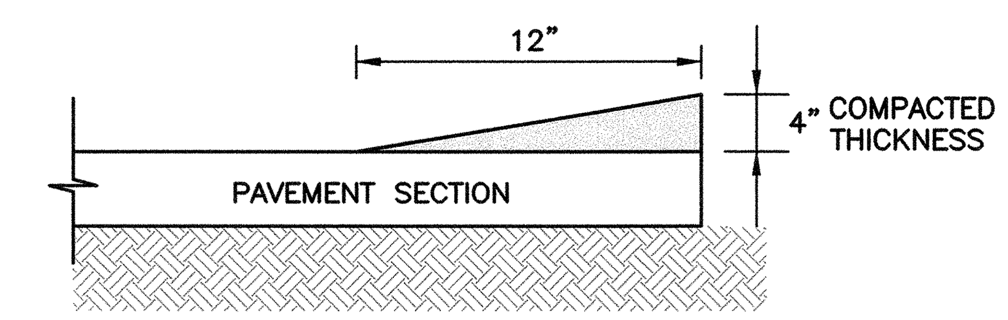


MINIMUM ENCASEMENT DIAMETER	
CARRIER DIA.(IN.)	ENCASEMENT INNER DIA.(IN.)
10	18
12	20

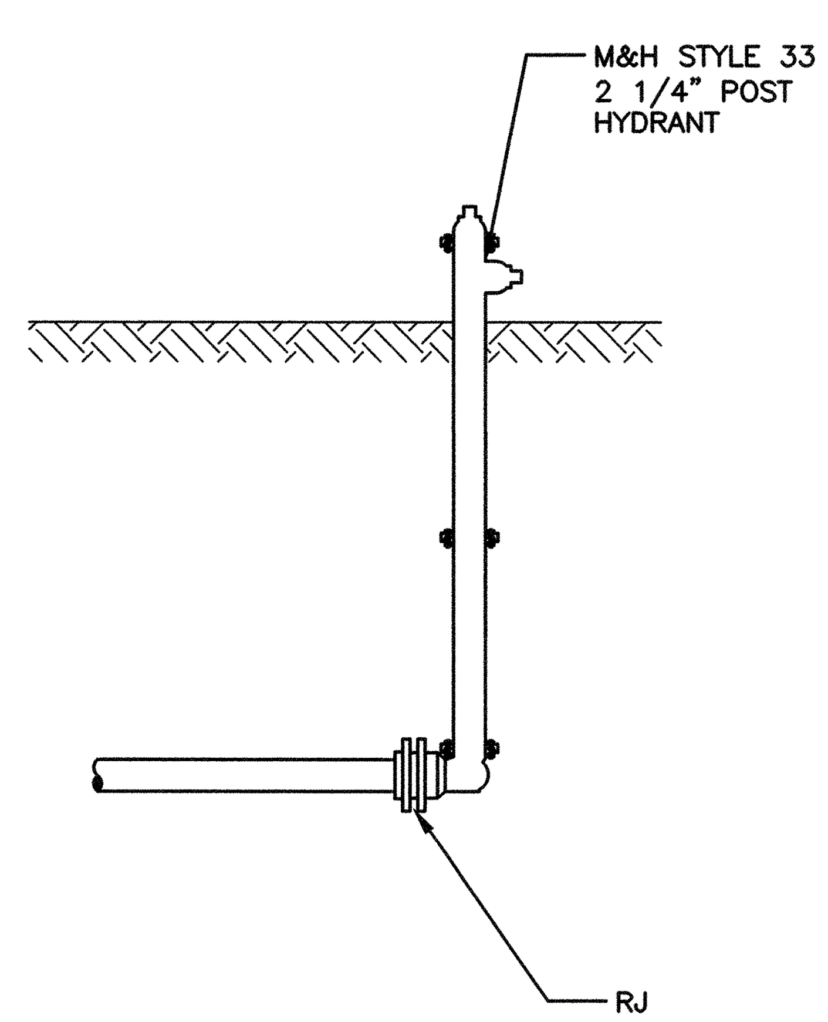
NOTES:

1. CARRIER PIPE WITHIN THE LENGTH OF THE ENCASEMENT PIPE SHALL HAVE RESTRAINED JOINTS.
2. ENCASEMENT PIPE SHALL HAVE A MINIMUM PRESSURE RATING OF 150 PSI.

1 / G1-3 ENCASEMENT DETAIL
NOT TO SCALE



2 / G1-8 HMA WEDGE CURB DETAIL
NOT TO SCALE



3 / G1-4 BLOW-OFF HYDRANT
NOT TO SCALE

0 1" 2"
TWO INCHES AT FULL SCALE. IF NOT, SCALE ACCORDINGLY

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DATE: APR 2015
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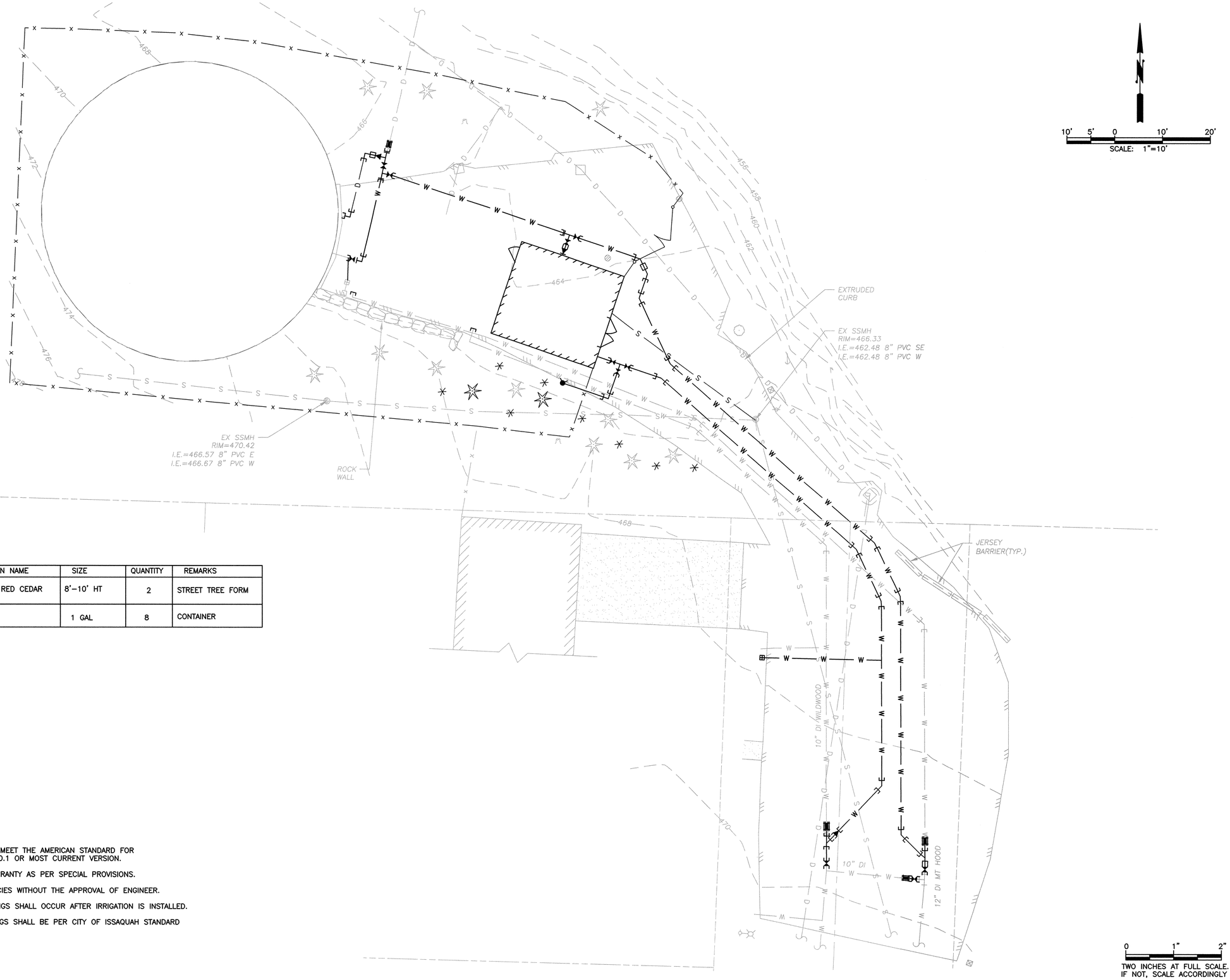
JOSEF NASH DALAELI — STATE OF WASHINGTON — REGISTERED PROFESSIONAL ENGINEER — 46527 — 4-27-15

CITY OF ISSAQUAH
KING COUNTY WASHINGTON
MOUNT HOOD BOOSTER STATION
DETAILS

SHEET: G1-5
8 OF 45

JOB NO.: 14543
DWG: G-DETAILS



SYMBOL	BOTANICAL NAME/COMMON NAME	SIZE	QUANTITY	REMARKS
✳	THUJA PLICATA/WESTERN RED CEDAR	8'–10' HT	2	STREET TREE FORM
✳	POLYSTICHUM MUNITUM/ WESTERN SWORD FERN	1 GAL	8	CONTAINER

GENERAL LANDSCAPE NOTES:

1. ALL PLANT MATERIALS TO MEET THE AMERICAN STANDARD FOR NURSERY STOCK, ANSI Z60.1 OR MOST CURRENT VERSION.
2. PLANT, MAINTAIN AND WARRANTY AS PER SPECIAL PROVISIONS.
3. DO NOT SUBSTITUDE SPECIES WITHOUT THE APPROVAL OF ENGINEER.
4. TREE AND SHRUB PLANTINGS SHALL OCCUR AFTER IRRIGATION IS INSTALLED.
5. TREE AND SHRUB PLANTINGS SHALL BE PER CITY OF ISSAQUAH STANDARD DETAILS L–01 AND L–04.

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DATE: APR 2015
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No.	REVISION	DATE	APPD

RISSELL L. PORTER — STATE OF WASHINGTON — 45527 — REGISTERED PROFESSIONAL ENGINEER

JOSEPH NASH DALALEIN — STATE OF WASHINGTON — 45527 — REGISTERED PROFESSIONAL ENGINEER

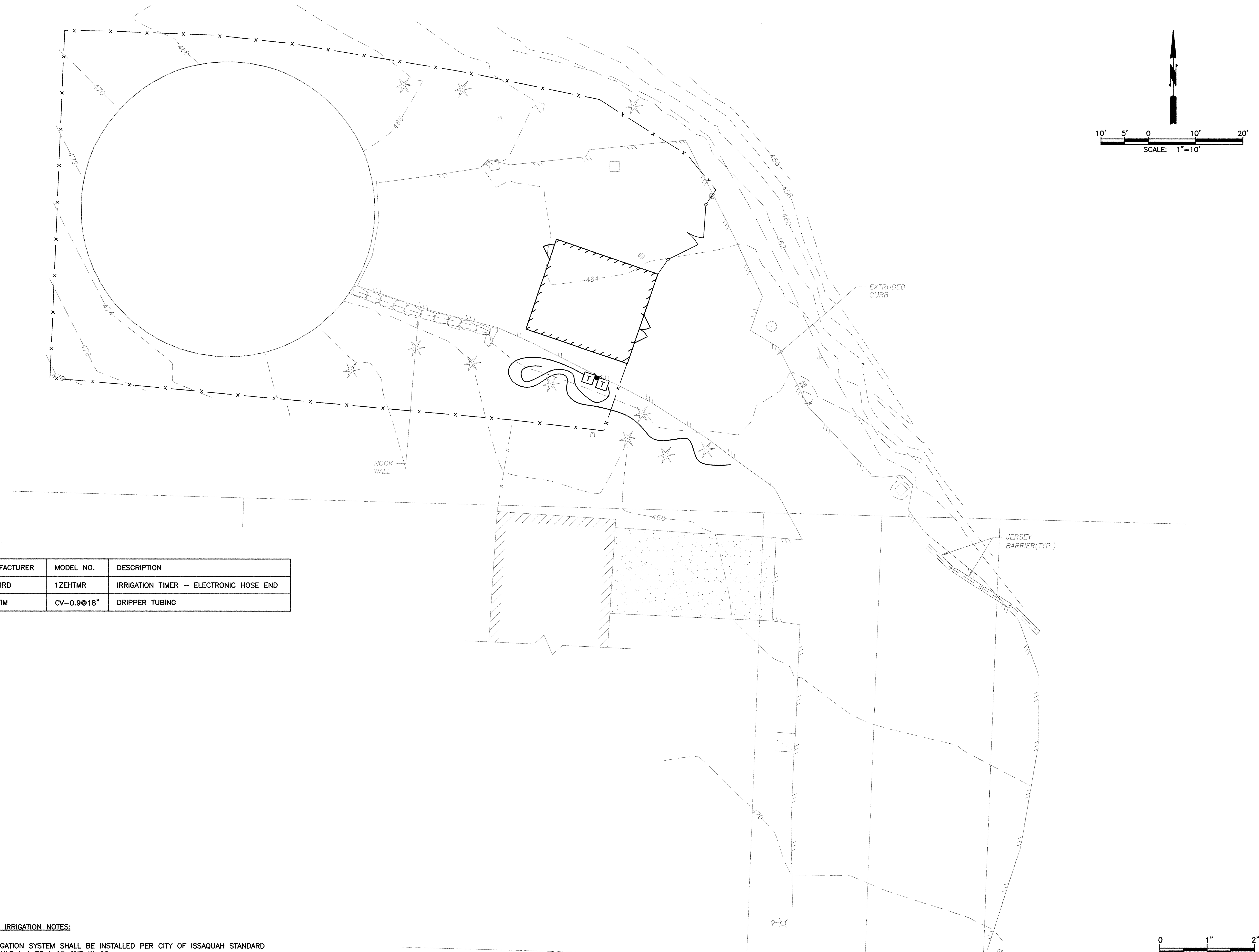
CITY OF ISSAQUAH
KING COUNTY WASHINGTON

MOUNT HOOD BOOSTER STATION

LANDSCAPE PLAN

SHEET: G1-6
9 OF 45

JOB NO.: 14543
DWG: LANDSCAPE_PLAN



SYMBOL	MANUFACTURER	MODEL NO.	DESCRIPTION
T (boxed)	RAINBIRD	1ZEHTMR	IRRIGATION TIMER – ELECTRONIC HOSE END
–	NETAFIM	CV–0.9@18"	DRIPPER TUBING

GENERAL IRRIGATION NOTES:

1. IRRIGATION SYSTEM SHALL BE INSTALLED PER CITY OF ISSAQUAH STANDARD DETAILS I–1 TO I–19 AND W–16.

10' 5' 0 10' 20'
SCALE: 1"=10'

0 1" 2"
TWO INCHES AT FULL SCALE.
IF NOT, SCALE ACCORDINGLY

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No.	REVISION	DATE	APPD

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JOSEF NASH DALAELI — STATE OF WASHINGTON — REGISTERED PROFESSIONAL ENGINEER — 46527 — 4-27-15

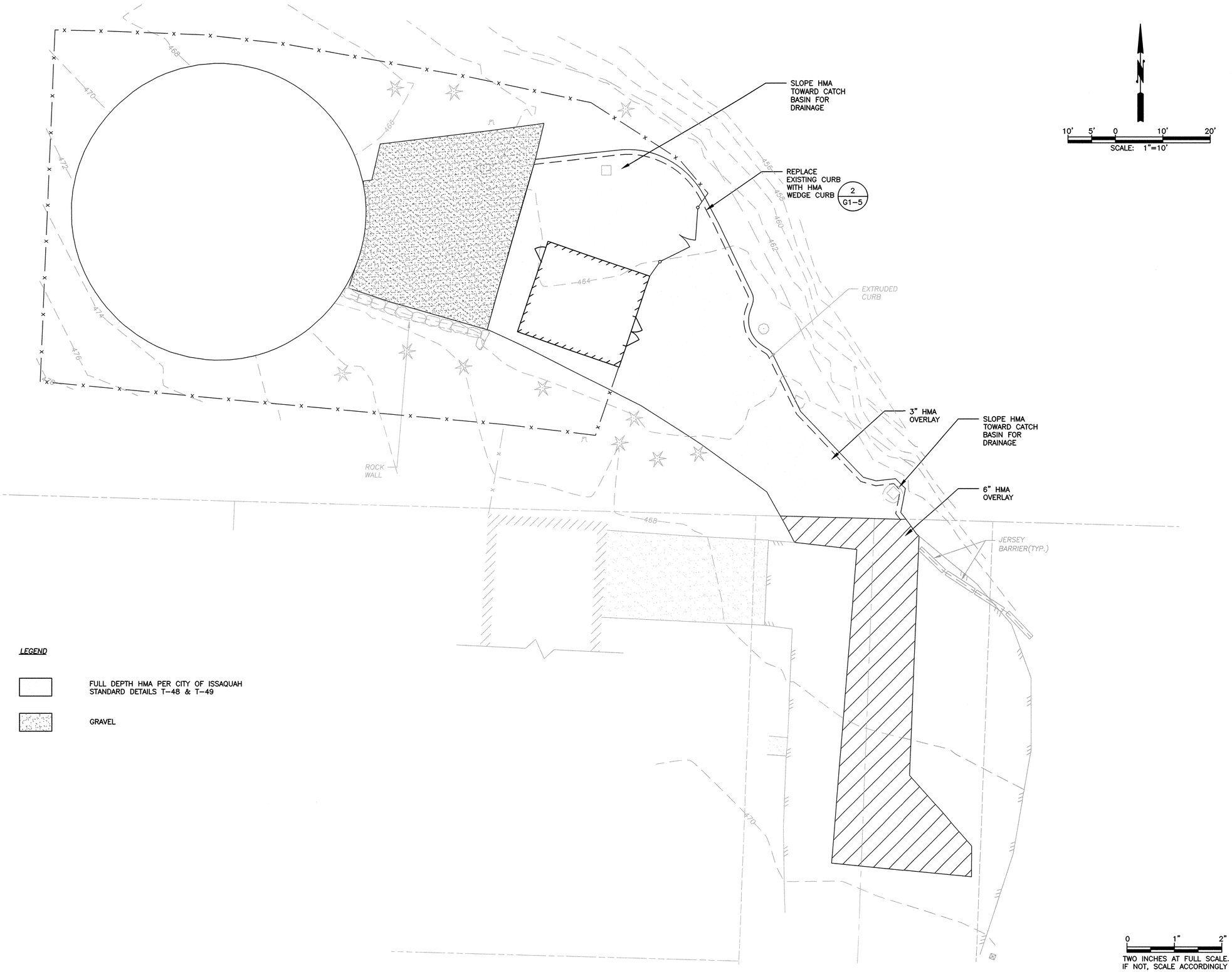
CITY OF ISSAQUAH
KING COUNTY WASHINGTON

MOUNT HOOD BOOSTER STATION

IRRIGATION PLAN

SHEET: G1-7
10 OF 45

JOB NO.: 14543
DWG: LANDSCAPE_PLAN



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APPROVED:	RLP

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JOSEF NASH DALAEL — STATE OF WASHINGTON — 46527 — REGISTERED PROFESSIONAL ENGINEER

CITY OF ISSAQUAH
WASHINGTON
KING COUNTY

MOUNT HOOD BOOSTER STATION

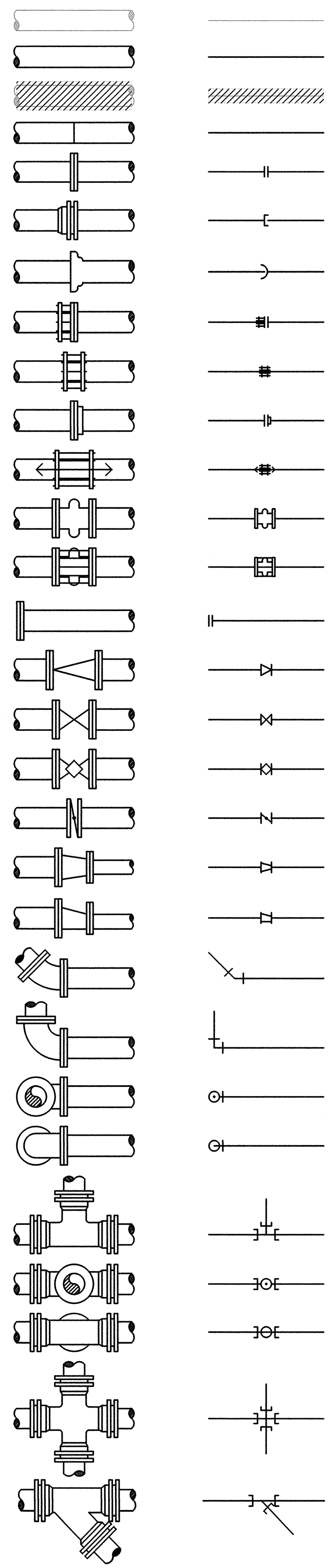
SURFACE RESTORATION PLAN

SHEET: **G1-8**
11 OF **45**

JOB NO.: 14543
DWG: LANDSCAPE_PLAN

PIPING SYMBOLS

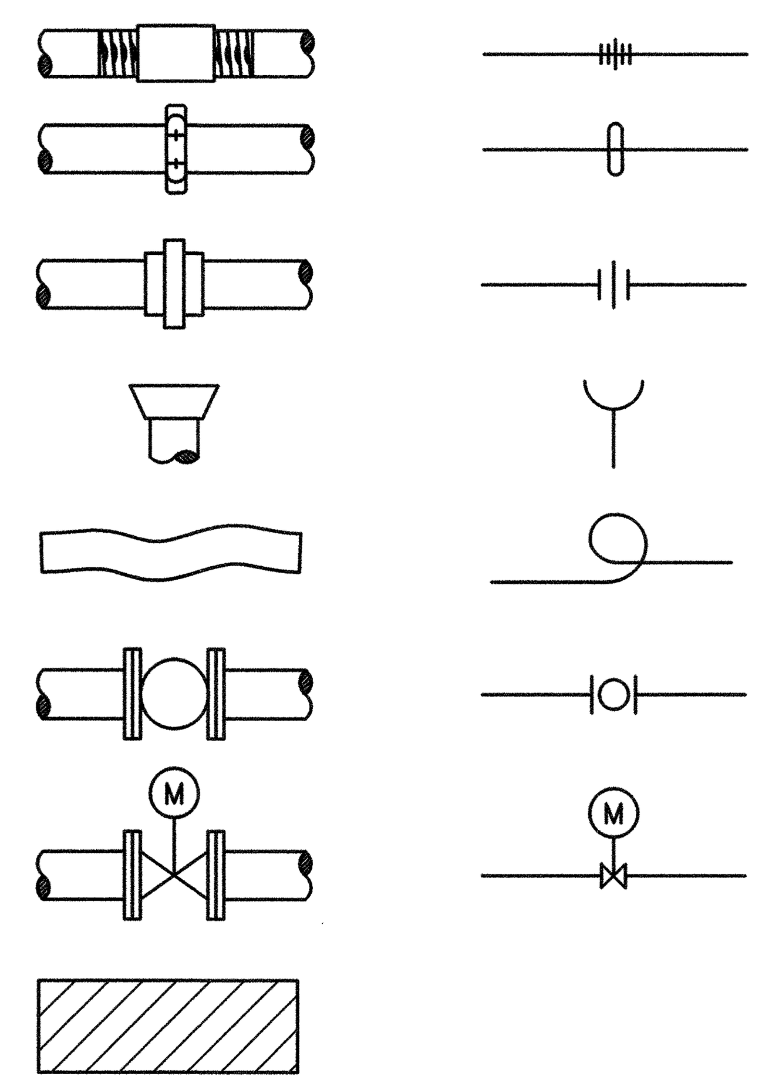
DOUBLE LINE | SINGLE LINE



- EXISTING PIPE
- NEW PIPE
- EXISTING PIPE TO BE REMOVED
- WELDED
- FLANGED
- MECHANICAL JOINT
- SOLVENT WELDED JOINT
- FLANGED COUPLING ADAPTER
- FLEXIBLE COUPLING
- ADAPTER FLANGE
- RESTRAINED FLEXIBLE COUPLING
- RUBBER EXPANSION JOINT
- RESTRAINED RUBBER EXPANSION JOINT
- BLIND FLANGE
- CHECK VALVE
- GATE VALVE
- PLUG VALVE
- BUTTERFLY VALVE
- CONCENTRIC REDUCER
- ECCENTRIC REDUCER
- ELBOW, 45°
- ELBOW, 90°
- ELBOW UP
- ELBOW DOWN
- TEE
- TEE UP
- TEE DOWN
- CROSS
- WYE

PIPING SYMBOLS

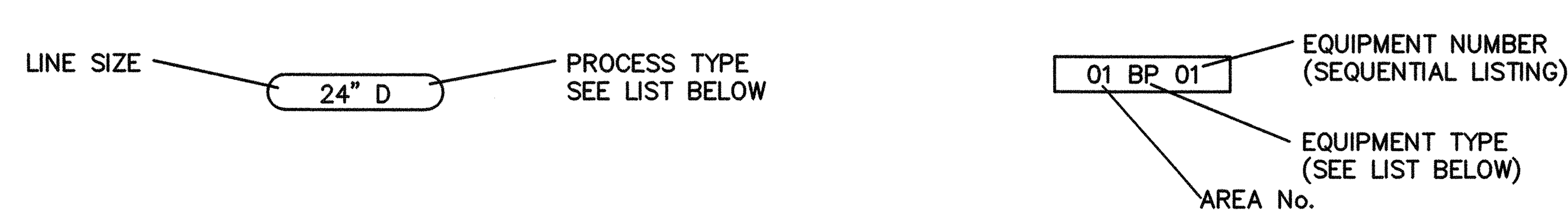
DOUBLE LINE | SINGLE LINE



- SCREWED JOINT
- GROOVED COUPLING
- UNION
- BELL UP
- FLEXIBLE HOSE OR TUBING
- BALL VALVE
- VALVE WITH MOTOR ACTUATOR
- DENOTES ITEMS TO BE REMOVED AND DISPOSED OF BY CONTRACTOR IN ACCORDANCE WITH THE SPECIFICATIONS

BOOSTER STATION PROCESS PIPING AND EQUIPMENT IDENTIFICATIONS

PROCESS PIPING | EQUIPMENT



PROCESS

D	DRAIN
W	POTABLE WATER
SD	STORM DRAIN
SAM	SAMPLE
V	VENT

EQUIPMENT

BP	BOOSTER PUMP
CPHA	CHLORINE/PH ANALYZER
DCVA	DOUBLE CHECK VALVE ASSEMBLY
FIT	FLOW INDICATOR & TRANSMITTER
CV	CONTROL VALVE
PRV	PRESSURE RELIEF VALVE
TH	TROLLEY HOIST
PT	PRESSURE TRANSDUCER

PIPING MATERIAL AND JOINING SCHEDULE

(EXCEPT WHERE SHOWN DIFFERENTLY ON THE DRAWINGS)

PROCESS PIPING CODE (SEE THIS SHEET)	INSIDE STRUCTURES	BURIED
W ⩾3"ø	FLANGED DUCTILE IRON	MECHANICAL JOINT DUCTILE IRON
W <3"ø	COPPER STEEL	SOLVENT WELDED PVC
V	SOLVENT WELDED PVC SCH 80	------
D	COPPER	C900 PVC DR25
SD	------	CORRUGATED POLYETHYLENE
SAM ≤ 1/2"	FEP TUBING (CHEMFLUOR)	COPPER
SAM > 1/2"	COPPER	COPPER

NOTES:

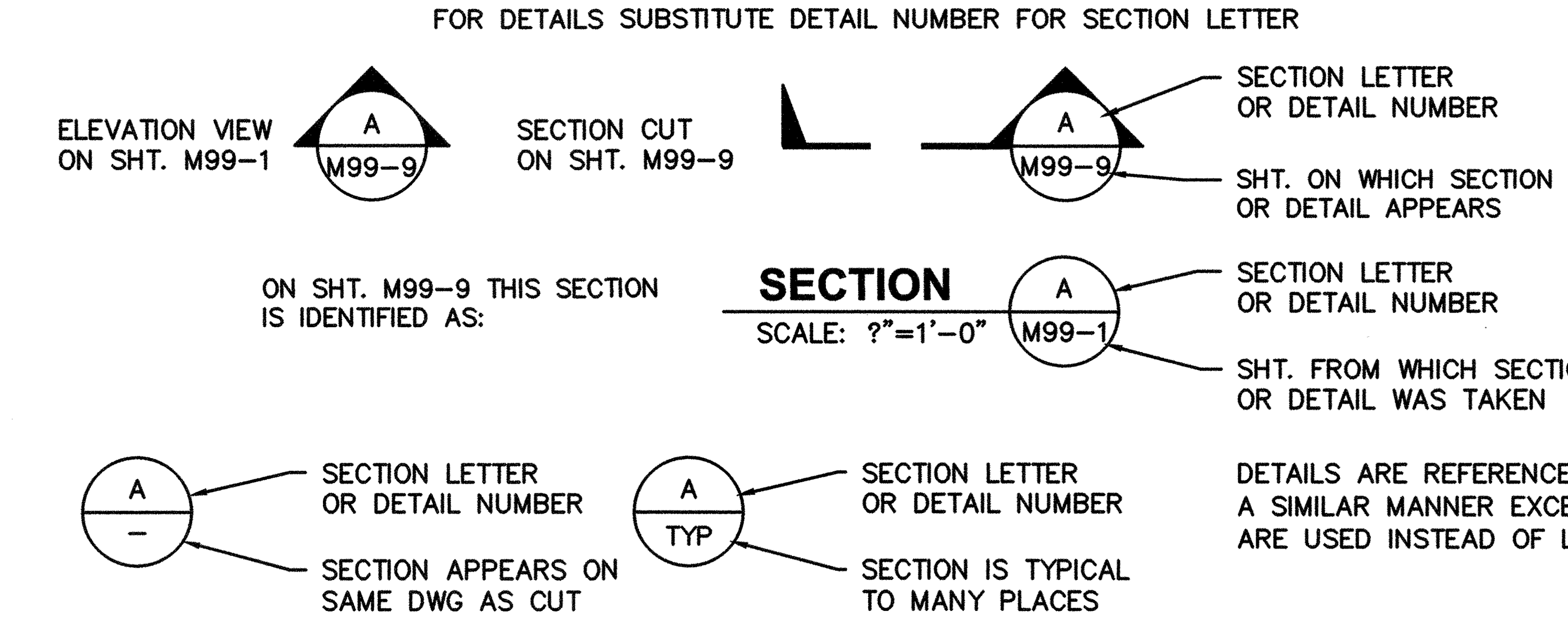
1. GALVANIZED PIPING IS NOT ACCEPTED FOR ANY USE.
2. LEAD BRASS PIPING IS NOT ACCEPTED FOR ANY USE.

DESIGN PARAMETERS

STATION CAPACITY:	500 GPM AT 160 FT TDH
No. OF PUMPS:	2 (1 DUTY, 1 STANDBY)
PUMP CAPACITY:	500 GPM AT 160 FT TDH
TYPE:	HORIZONTAL SPLIT CASE
MOTOR SIZE:	40 HP
VARIABLE FREQUENCY DRIVES:	YES
ONSITE GENERATOR:	NO (PORTABLE GENERATOR RECEPTACLE)

EXAMPLE OF SECTION NUMBERING SYSTEM AND PLAN/DRAWING TITLES

FOR DETAILS SUBSTITUTE DETAIL NUMBER FOR SECTION LETTER



DETAILS ARE REFERENCED IN A SIMILAR MANNER EXCEPT NUMBERS ARE USED INSTEAD OF LETTERS

0 1" 2"
TWO INCHES AT FULL SCALE. IF NOT, SCALE ACCORDINGLY

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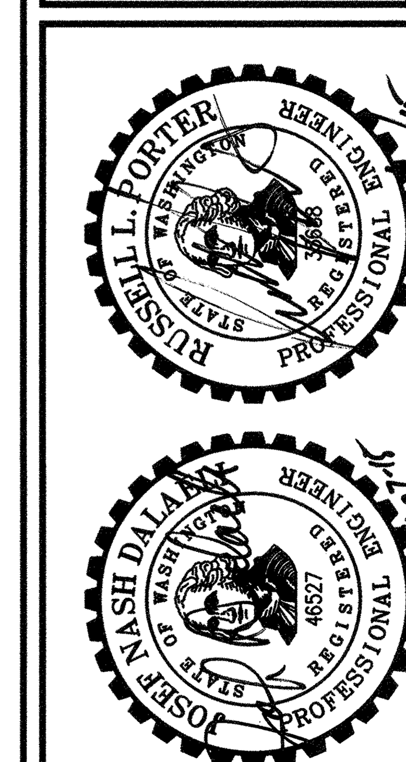
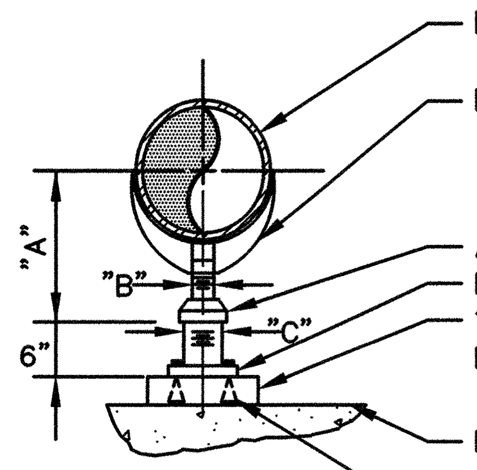


CITY OF ISSAQUAH
KING COUNTY WASHINGTON
MOUNT HOOD BOOSTER STATION
MECHANICAL SYMBOL LEGEND & ABBREVIATIONS

SHEET: M-1
12 OF 45

JOB NO.: 14543
DWG: M-LEGEND

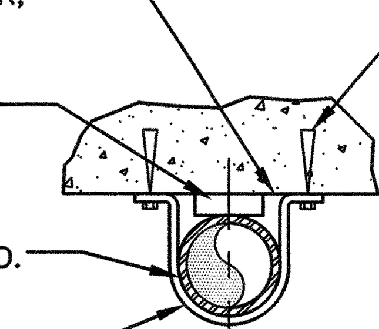


PIPE SIZE "X"	MIN. LENGTH "A"	MAX. LENGTH "A"	PIPE DIAM. "B"	PIPE DIAM. "C"
8"	11 3/4"	1'-4 1/2"	2 1/2"	3"
12"	1'-3"	1'-7 3/4"	2 1/2"	3"

NOTES:

1. PIPE SUPPORT SHALL BE ANVIL FIG. 264 OR EQUAL.
2. PIPE "C" TO BE SET IN THREADED FLANGE BASE AND WELDED ALL AROUND.
3. ALL STEEL NOT STAINLESS SHALL BE HOT DIPPED GALVANIZED.

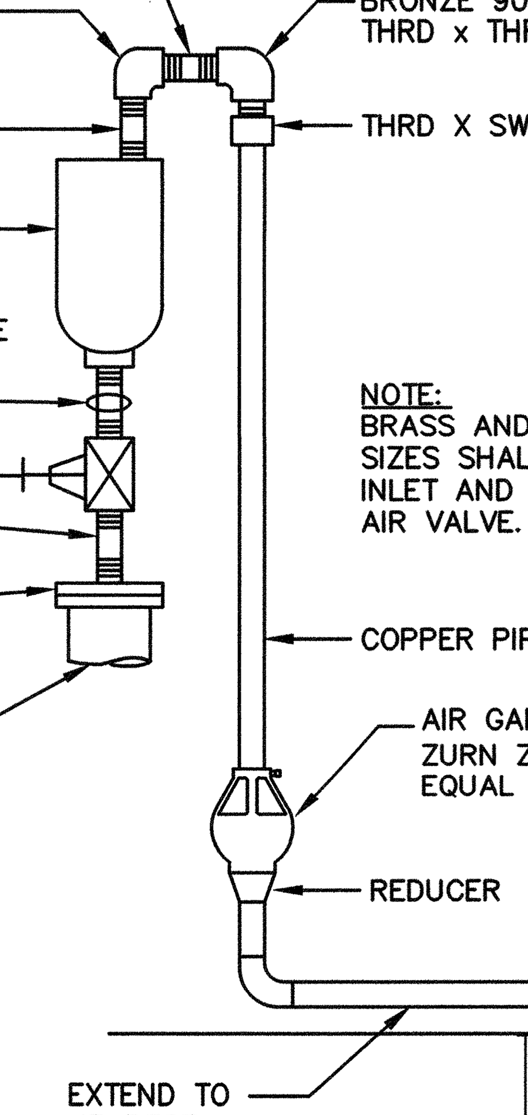
PIPE SUPPORT TYPE "A" (1 / TYP.)
NTS



NOTE

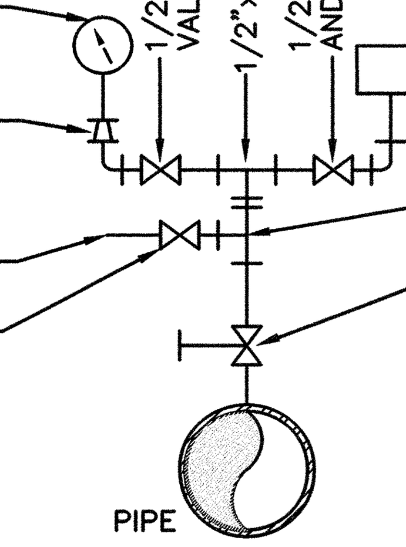
1. PIPE SUPPORT TYPE B SHALL BE USED TO SECURE ALL SMALL DIAMETER PIPING, TUBING AND CONDUITS TO WALLS AND CEILINGS. SECURE AT ALL FITTING LOCATIONS AND AT 4' O.C. MIN.

PIPE SUPPORT TYPE "B" (2 / TYP.)
NTS



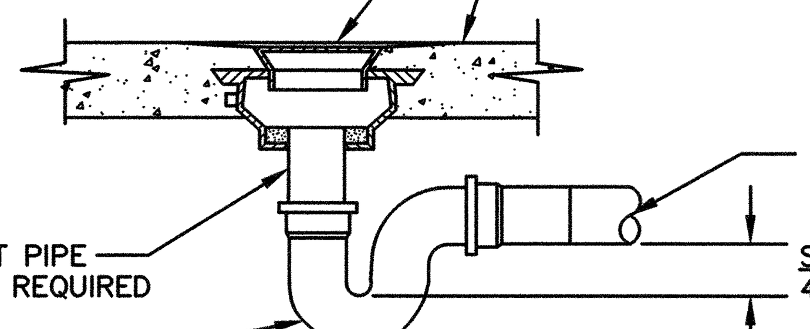
NOTE:
BRASS AND COPPER SIZES SHALL MATCH INLET AND OUTLET OF AIR VALVE.

COMBINATION AIR VALVE (3 / TYP.)
NTS



NOTE:
ALL FITTINGS, GAUGES, VALVES, SNUBBERS, ETC. TO BE THREADED. USE BRASS 1/2" THREADED PIPE SPOOLS FOR CONNECTIONS

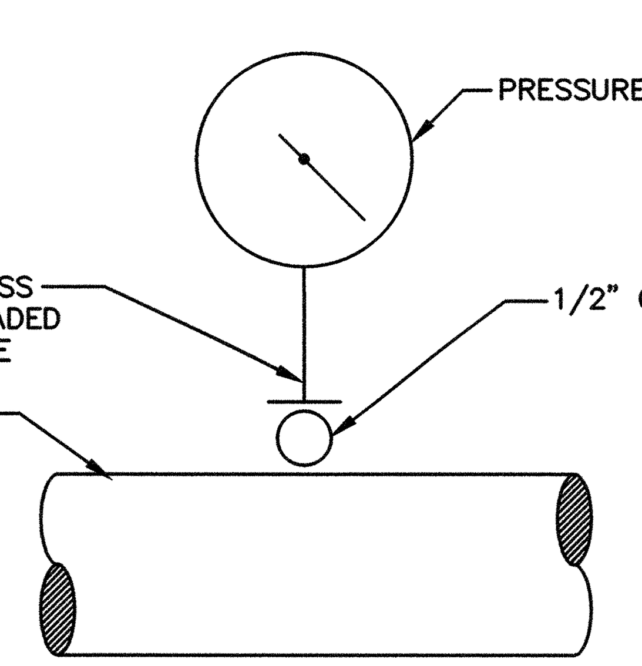
PRESSURE GAUGE AND TRANSMITTER (4 / TYP.)
NTS



NOTE:

FLOOR DRAINS SHALL MEET UNIFORM PLUMBING CODE REQUIREMENTS FOR COMBINATION WASTE AND VENT SYSTEMS.

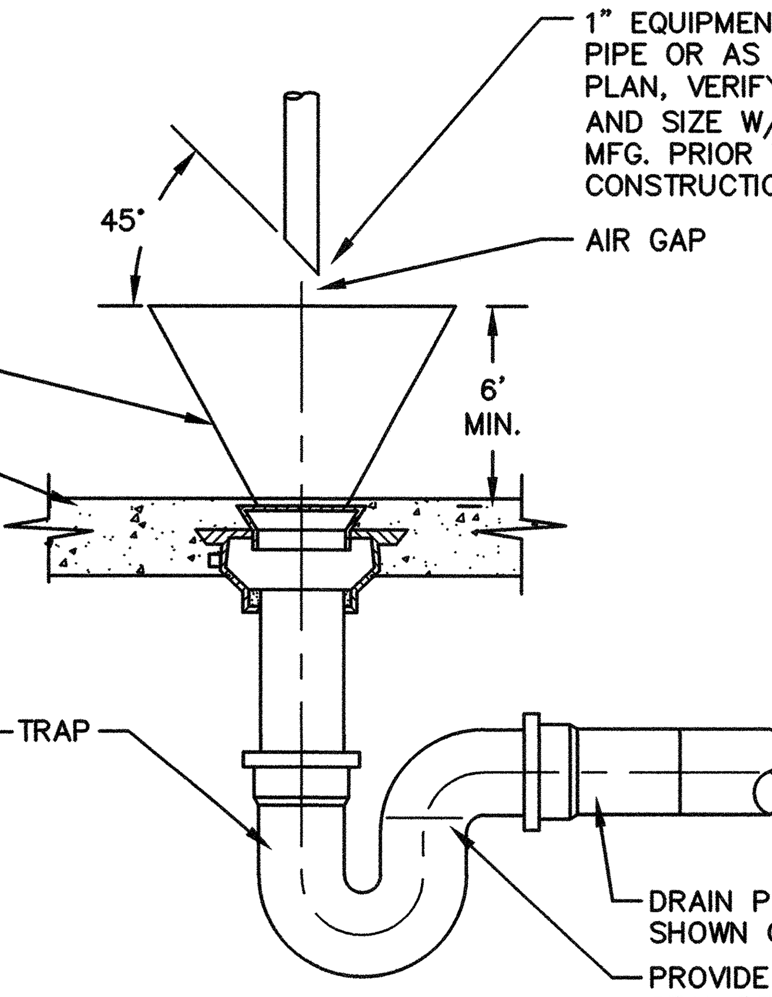
FLOOR DRAIN DETAIL (5 / TYP.)
NTS



PRESSURE GAUGE (6 / TYP)
NTS

NOTE:

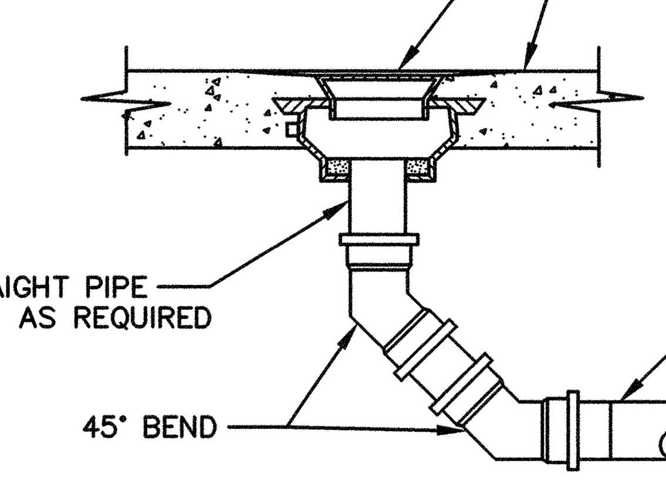
PRESSURE GAUGE BRAND AND RANGE AS NOTED ON SHEET M1-1.



NOTES:

1. PROVIDE ALL NECESSARY ADAPTERS, BUSHINGS, AND COUPLERS AS REQUIRED FOR DRAIN CONNECTIONS TO EQUIPMENT.
2. VERIFY LOCATION OF DRAIN FOR ALL EQUIPMENT PRIOR TO EQUIPMENT DRAIN CONSTRUCTION.

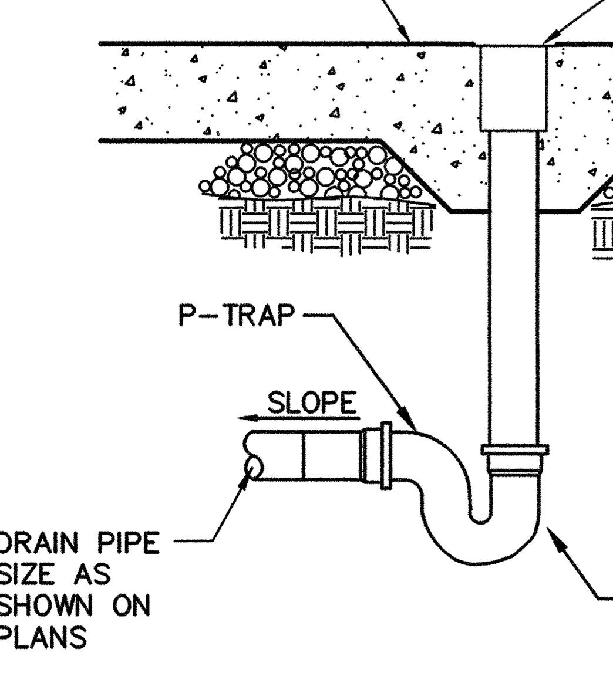
EQUIPMENT DRAIN (7 / TYP)
NTS



NOTE:

CLEANOUTS SHALL MEET UNIFORM PLUMBING CODE REQUIREMENTS FOR COMBINATION WASTE AND VENT SYSTEMS.

CLEANOUT DETAIL (8 / TYP.)
NTS



TRENCH DRAIN DETAIL (9 / TYP)
NOT TO SCALE

0 1" 2"
TWO INCHES AT FULL SCALE. IF NOT, SCALE ACCORDINGLY

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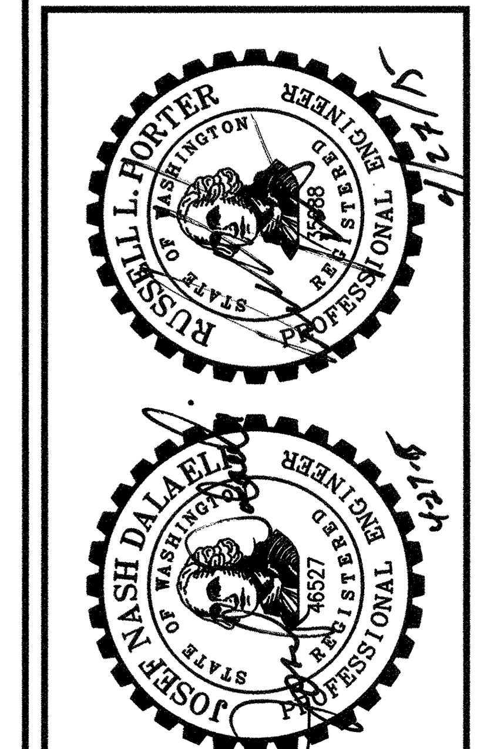
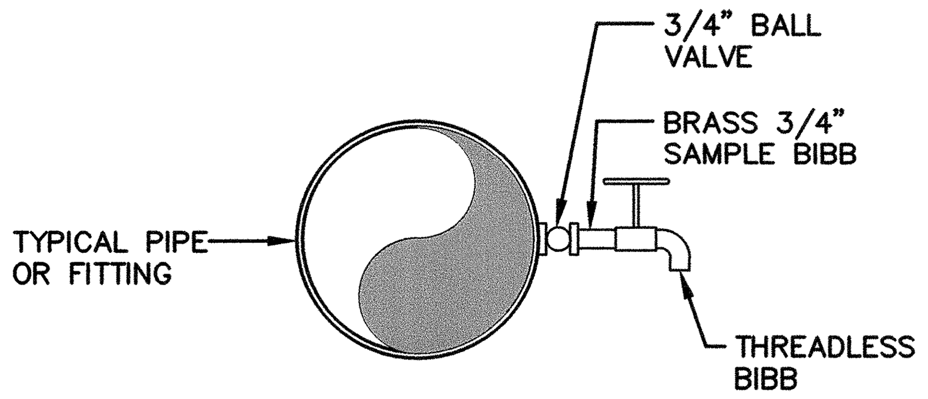
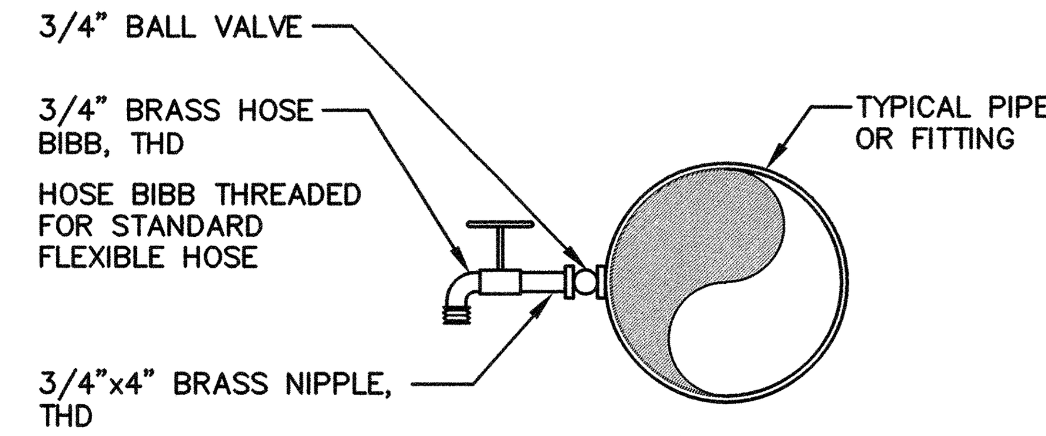


CITY OF ISSAQUAH
KING COUNTY WASHINGTON
MOUNT HOOD BOOSTER STATION
MECHANICAL DETAILS

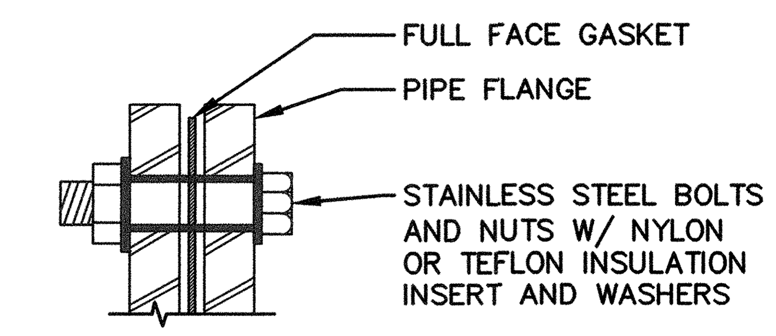
SHEET: M-2
13 OF 45
JOB NO.: 14543
DWG: M-DETAILS



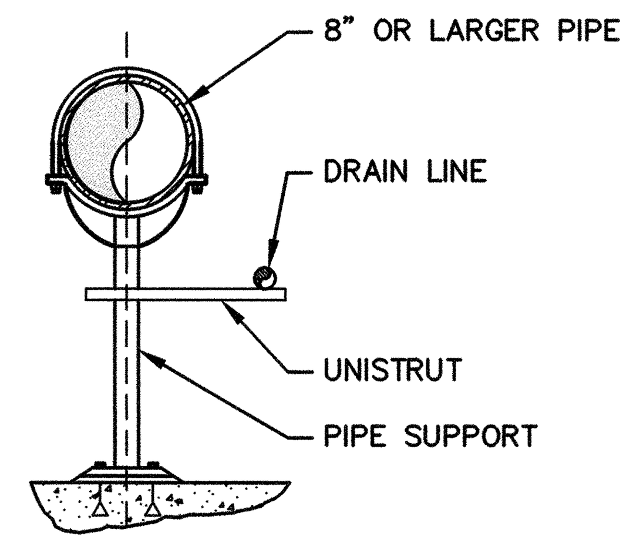
SAMPLE BIBB (1 / TYP.)
NTS



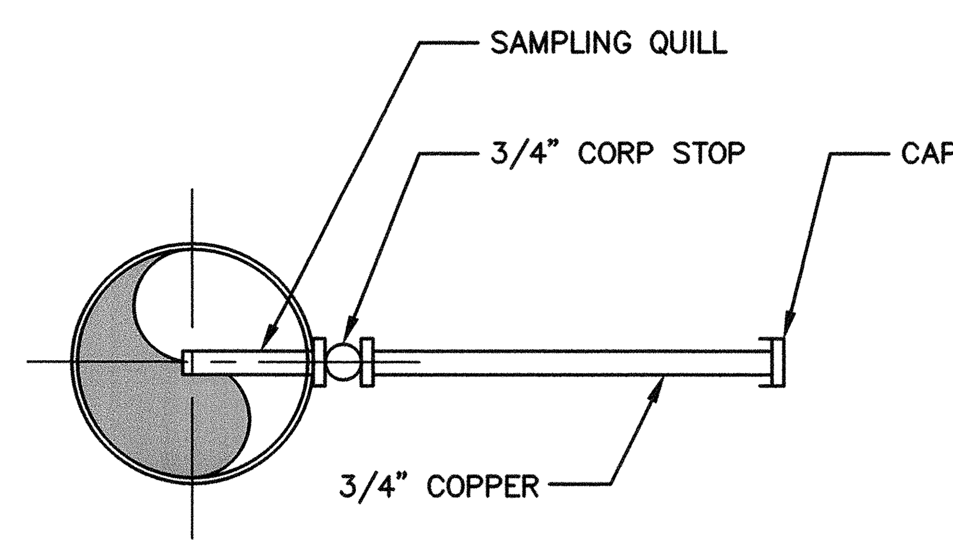
HOSE BIBB (2 / TYP.)
NTS



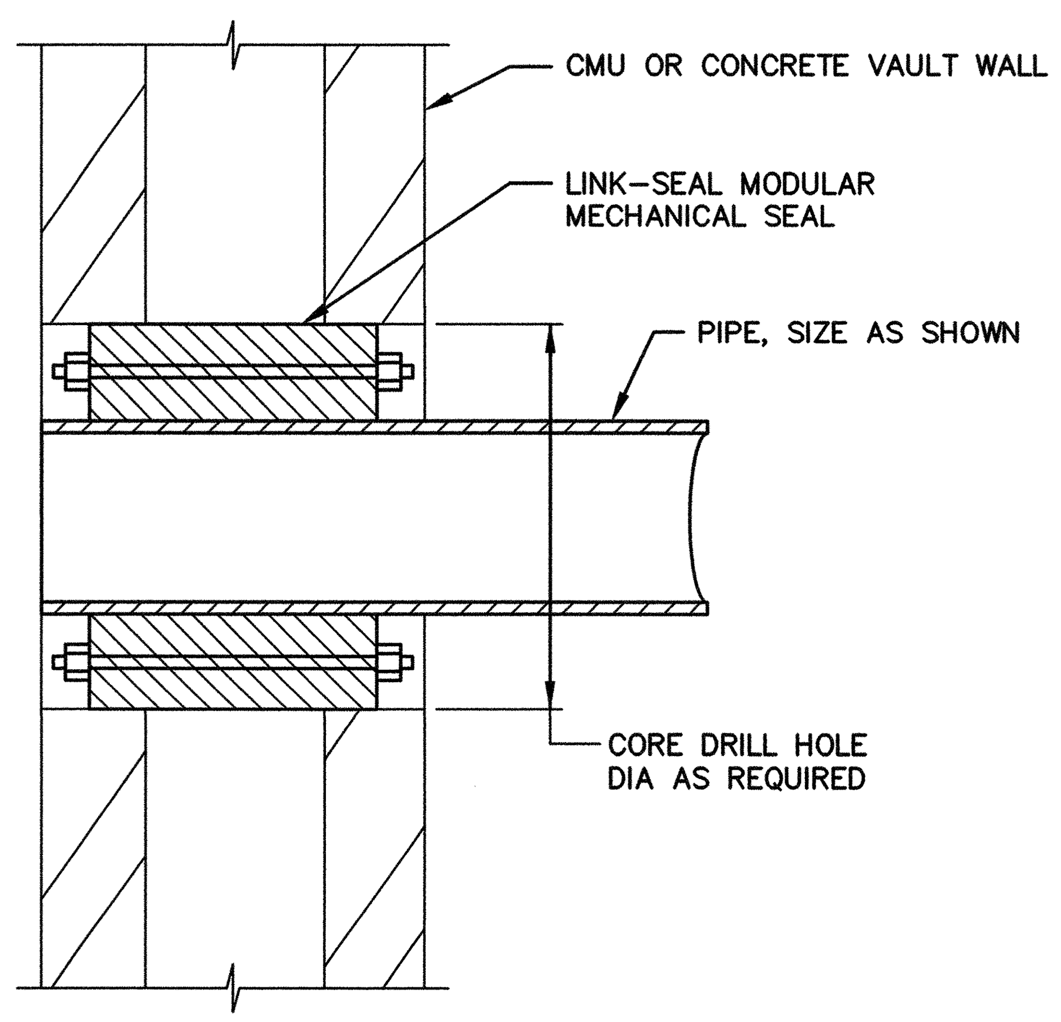
DIELECTRIC COUPLING (3 / TYP.)
NTS



DRAIN LINE SUPPORT (4 / TYP.)
NTS



TYPICAL SAMPLING POINTS (5 / TYP.)
NTS



PIPE WALL PENETRATION (6 / TYP.)
NTS

NOTE:

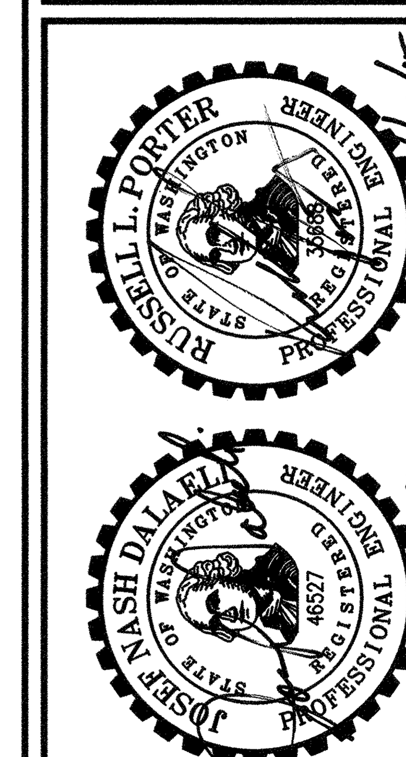
LEAD BRASS PIPING IS NOT ACCEPTED FOR ANY USE.

0 1" 2"
TWO INCHES AT FULL SCALE.
IF NOT, SCALE ACCORDINGLY

Gray & Osborne, Inc.
CONSULTING ENGINEERS
701 DEXTER AVENUE NORTH SUITE 200
SEATTLE, WASHINGTON 98109 • (206) 284-0860

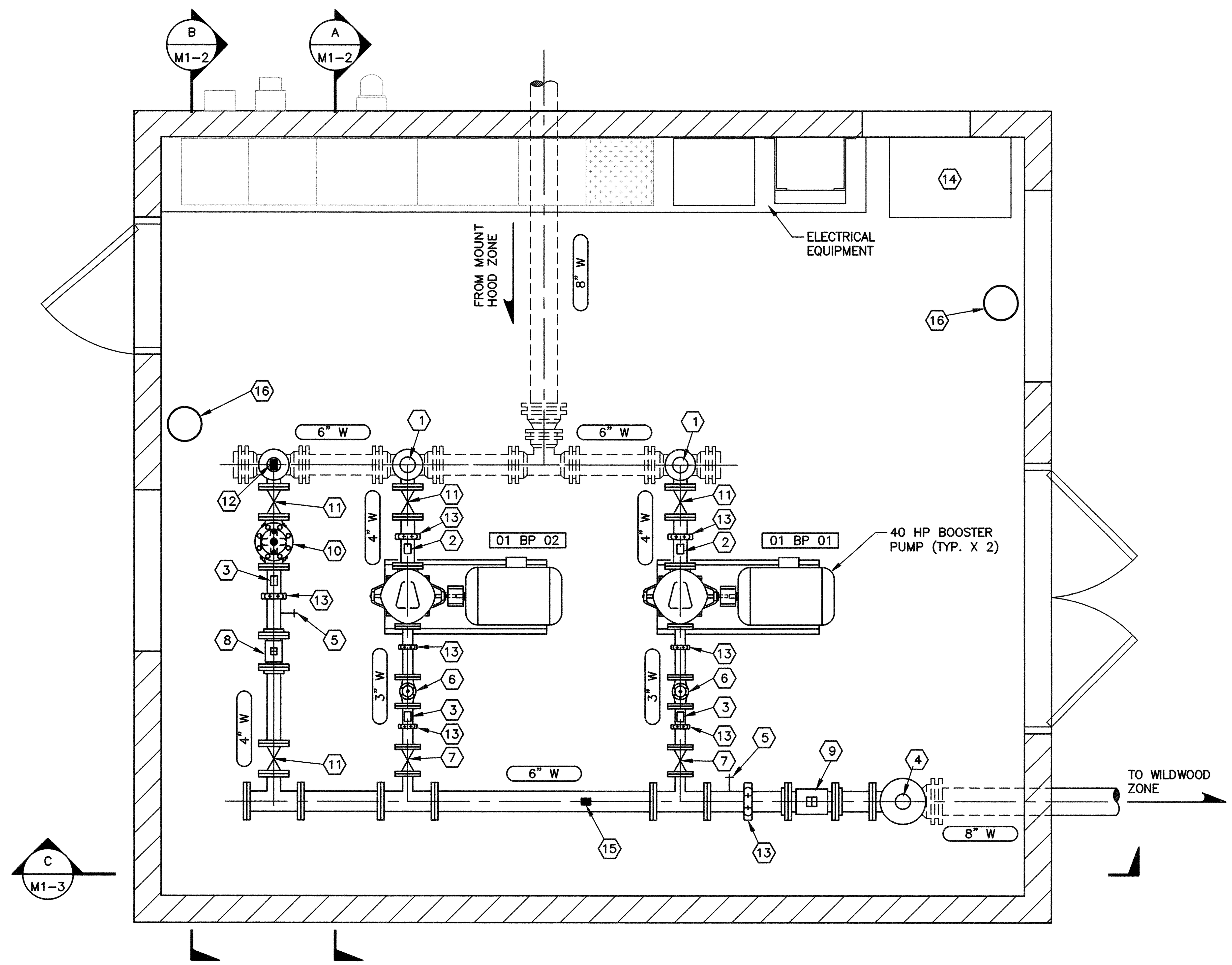
DATE: APR 2015
SCALE: NOTED
DRAWN: MAN
CHECKED: JND
APPROVED: RLP

No.	REVISION	DATE	APPD



CITY OF ISSAQUAH
KING COUNTY WASHINGTON
MOUNT HOOD BOOSTER STATION
MECHANICAL DETAILS

SHEET: **M-3**
14 OF **45**
JOB NO.: 14543
DWG: M-DETAILS



PLAN

SCALE: 1/2"=1'-0"

LEGEND:

1. 1" COMBINATION AIR VALVE
2. PRESSURE GAUGE, SUCTION SIDE (RANGE: 0–30 PSI)
3. PRESSURE GAUGE, DISCHARGE SIDE (RANGE: 0–100 PSI)
4. 2" COMBINATION AIR VALVE
5. SAMPLE BIBB
6. 3" CHECK VALVE
7. 3" GATE VALVE
8. 4" BYPASS MAGNETIC FLOW METER, SIEMENS MAGFLO 5100W W/ REMOTE MOUNT 6000 CONVERTER
9. 6" MAGNETIC FLOW METER, SIEMENS MAGFLO 5100W W/ REMOTE MOUNT 6000 CONVERTER
10. 4" PRESSURE RELIEF VALVE
11. 4" GATE VALVE
12. SUCTION PRESSURE GAUGE AND TRANSMITTER (RANGE: 0–30 PSI)
13. GROOVED COUPLING (VICTAULIC)
14. SHOP DESK CABINET
15. DISCHARGE PRESSURE GAUGE AND TRANSMITTER (RANGE: 0–100 PSI)
16. FIRE EXTINGUISHER (20 LB ABC)

CITY OF ISSAQUAH · BUILDING REVIEW
APPROVED
ALL WORK SUBJECT TO FIELD INSPECTION

0 1" 2"
TWO INCHES AT FULL SCALE. IF NOT, SCALE ACCORDINGLY

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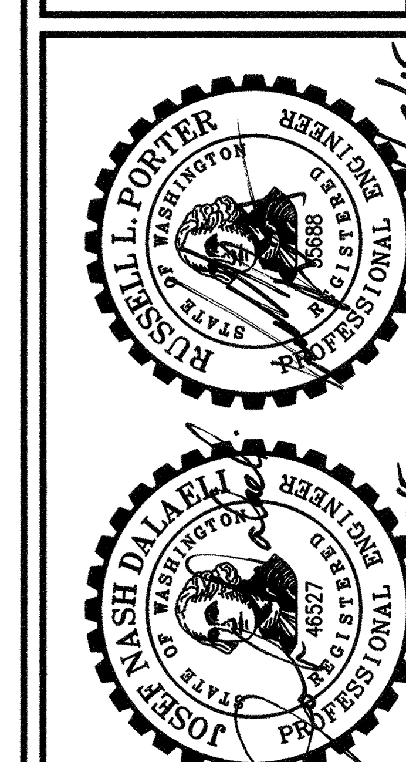
SEATTLE, WASHINGTON 98109 • (206) 284-0860

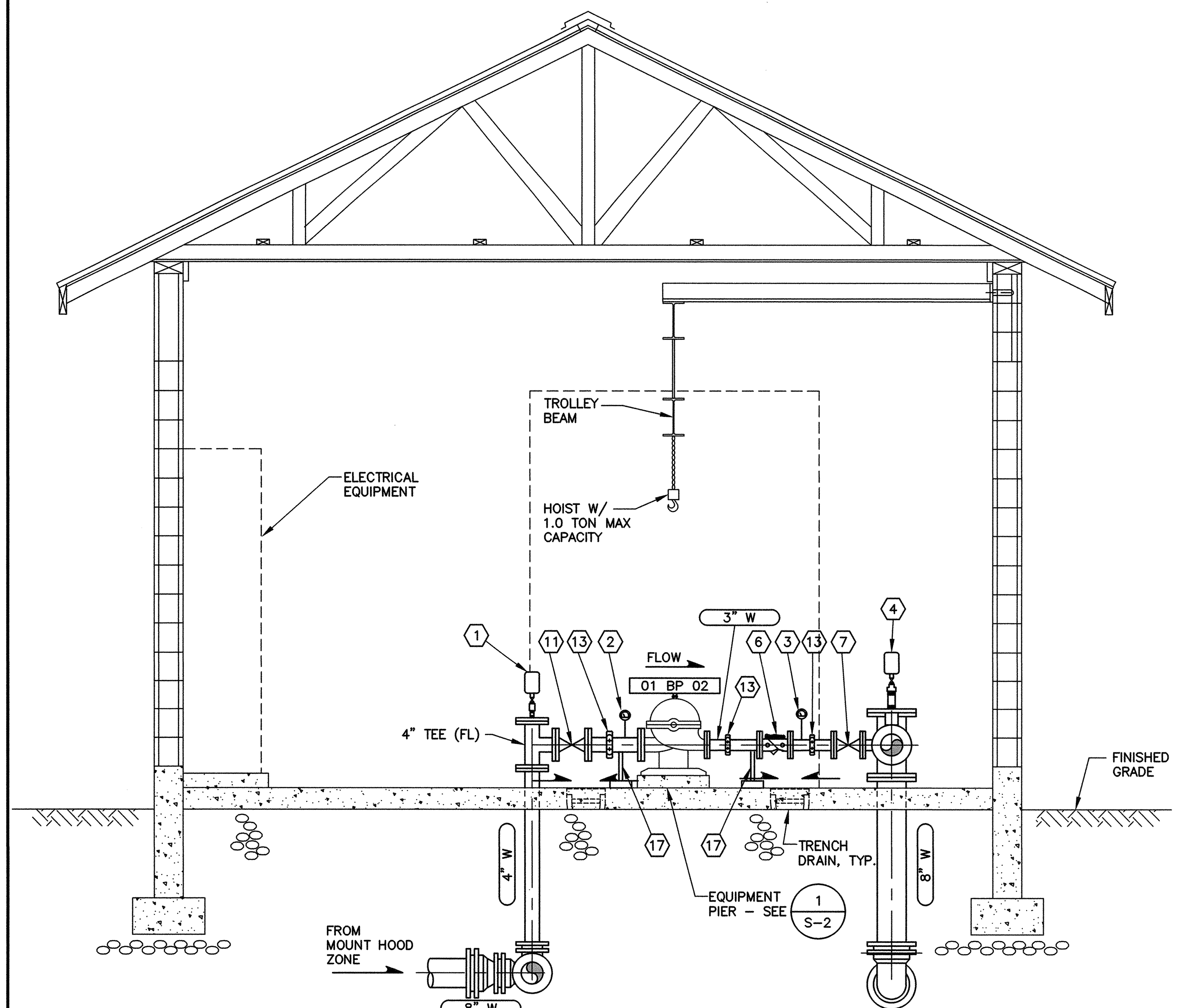
DATE: APR 2015
SCALE: NOTED
DRAWN: MAN
CHECKED: JND
APPROVED: RLP

No.	REVISION	DATE	APPD

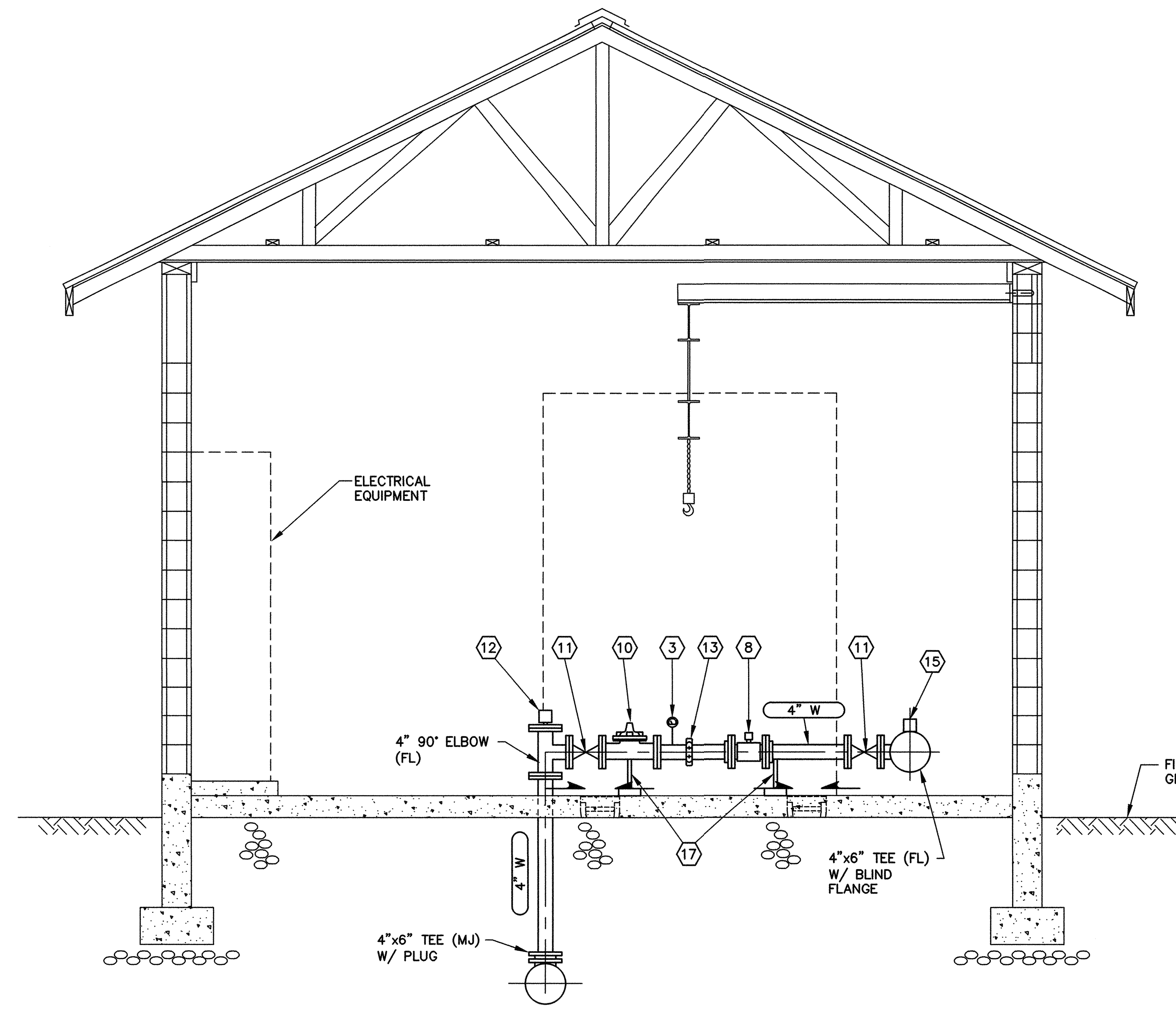


CITY OF ISSAQUAH
KING COUNTY WASHINGTON
MOUNT HOOD BOOSTER STATION
BOOSTER STATION PLAN

SHEET: M1-1
15 OF 45
JOB NO.: 14543
DWG: M-BLDG



A M1-1 **SECTION**
SCALE: 1/2"=1'-0"



B M1-1 **SECTION**
SCALE: 1/2"=1'-0"

LEGEND:

- (1) 1" COMBINATION AIR VALVE
- (2) PRESSURE GAUGE, SUCTION SIDE
- (3) PRESSURE GAUGE, DISCHARGE SIDE
- (4) 2" COMBINATION AIR VALVE
- (6) 3" CHECK VALVE
- (7) 3" GATE VALVE
- (8) 4" BYPASS MAGNETIC FLOW METER, SIEMENS MAGFLO 5100W W/ REMOTE MOUNT 6000 CONVERTER
- (10) 4" PRESSURE RELIEF VALVE
- (11) 4" GATE VALVE
- (12) SUCTION PRESSURE GAUGE AND TRANSMITTER
- (13) GROOVED COUPLING (VICTAULIC)
- (15) DISCHARGE PRESSURE GAUGE AND TRANSMITTER
- (17) PIPE SUPPORT, TYPE A

NOTES:

1. FLANGE COUPLING ADAPTERS AND ADAPTER FLANGES SHALL BE RESTRAINED.
2. ALL MJ PIPING, JOINTS, AND CONNECTIONS SHALL BE RESTRAINED.
3. SOME OBJECTS ROTATED FOR CLARITY.
4. CONTRACTOR TO VERIFY PUMP DIMENSIONS TO CONFIRM SUCTION/DISCHARGE MANIFOLD ELEVATIONS

0 1" 2"
TWO INCHES AT FULL SCALE.
IF NOT, SCALE ACCORDINGLY

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DATE: APR 2015
SCALE: NOTED
DRAWN: MAN
CHECKED: JND
APPROVED: RLP

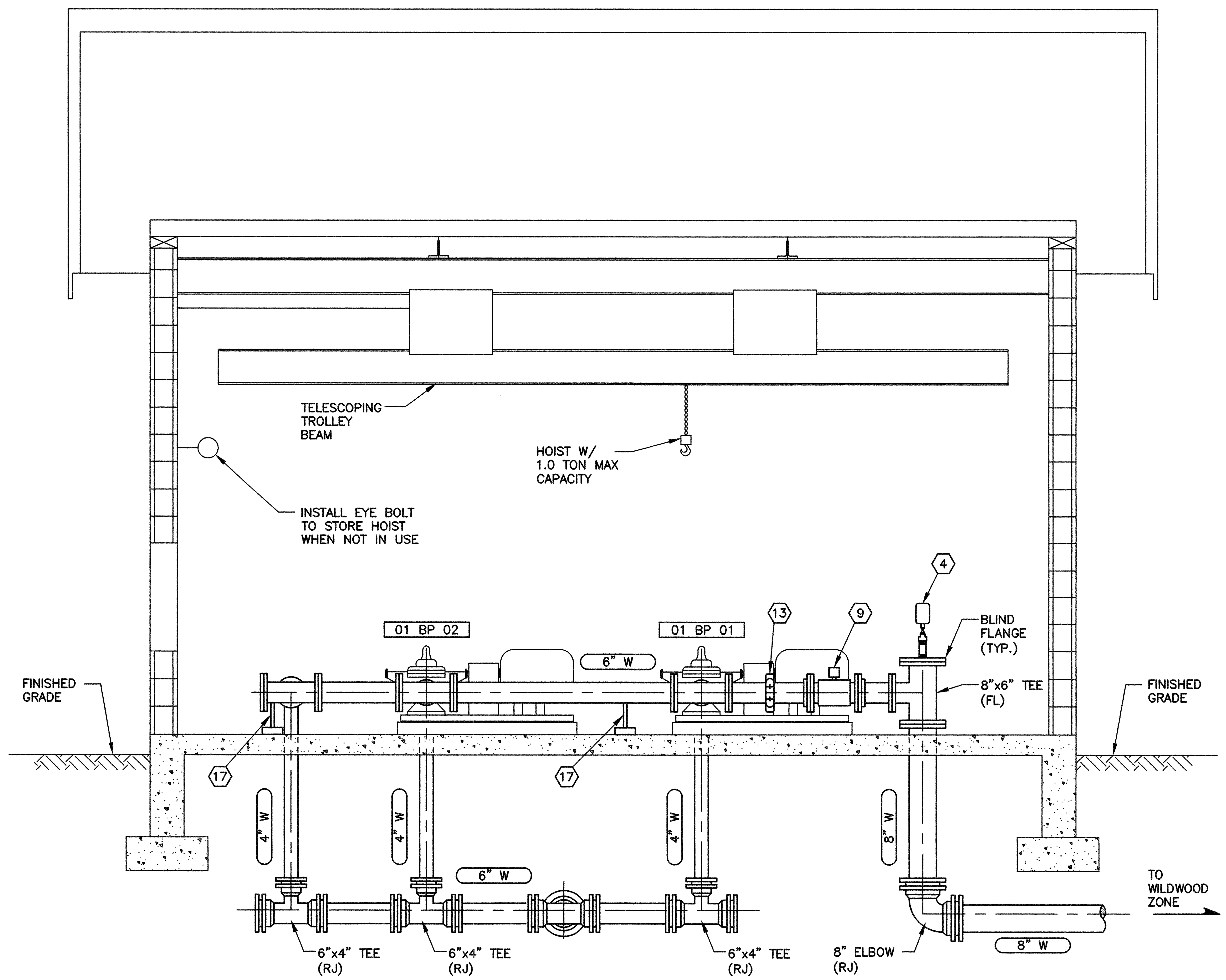
No.	REVISION	DATE	APPD

RUSSELL L. PORTER — STATE OF WASHINGTON — REGISTERED PROFESSIONAL ENGINEER — 35688 — 4/27/15

JOSEF NASH DALAEN — STATE OF WASHINGTON — REGISTERED PROFESSIONAL ENGINEER — 46527 — 4-27-15

CITY OF ISSAQUAH
KING COUNTY WASHINGTON
MOUNT HOOD BOOSTER STATION
BOOSTER STATION SECTION

SHEET: **M1-2**
16 OF **45**
JOB NO.: 14543
DWG: M-BLDG



SECTION (C / M1-1)
SCALE: 1/2"=1'-0"

LEGEND:

- ⟨4⟩ 2" COMBINATION AIR VALVE
- ⟨9⟩ 6" MAGNETIC FLOW METER, SIEMENS MAGFLO 5100W W/ INTEGRAL MOUNT 6000 CONVERTER
- ⟨13⟩ GROOVED COUPLING (VICTAULIC)
- ⟨17⟩ PIPE SUPPORT

NOTES:

1. FLANGE COUPLING ADAPTERS AND ADAPTER FLANGES SHALL BE RESTRAINED.
2. ALL MJ PIPING SHALL BE RESTRAINED.
3. SOME OBJECTS ROTATED FOR CLARITY.

CITY OF ISSAQUAH · BUILDING REVIEW
APPROVED
ALL WORK SUBJECT TO FIELD INSPECTION

0 1" 2"
TWO INCHES AT FULL SCALE. IF NOT, SCALE ACCORDINGLY

Gray & Osborne, Inc.
CONSULTING ENGINEERS
701 DEXTER AVENUE NORTH SUITE 200
SEATTLE, WASHINGTON 98109 • (206) 284-0860

DATE: APR 2015
SCALE: NOTED
DRAWN: MAN
CHECKED: JND
APPROVED: RLP

No.	REVISION	DATE	APPD

RUSSELL L. PORTER — STATE OF WASHINGTON — REGISTERED PROFESSIONAL ENGINEER — 4/27/15
JOSEPH NASH DALAEL — STATE OF WASHINGTON — 46527 — REGISTERED PROFESSIONAL ENGINEER — 4-27-15

CITY OF ISSAQUAH
KING COUNTY WASHINGTON
MOUNT HOOD BOOSTER STATION
BOOSTER STATION SECTION

SHEET: M1-3
17 OF 45
JOB NO.: 14543
DWG: M-BLDG

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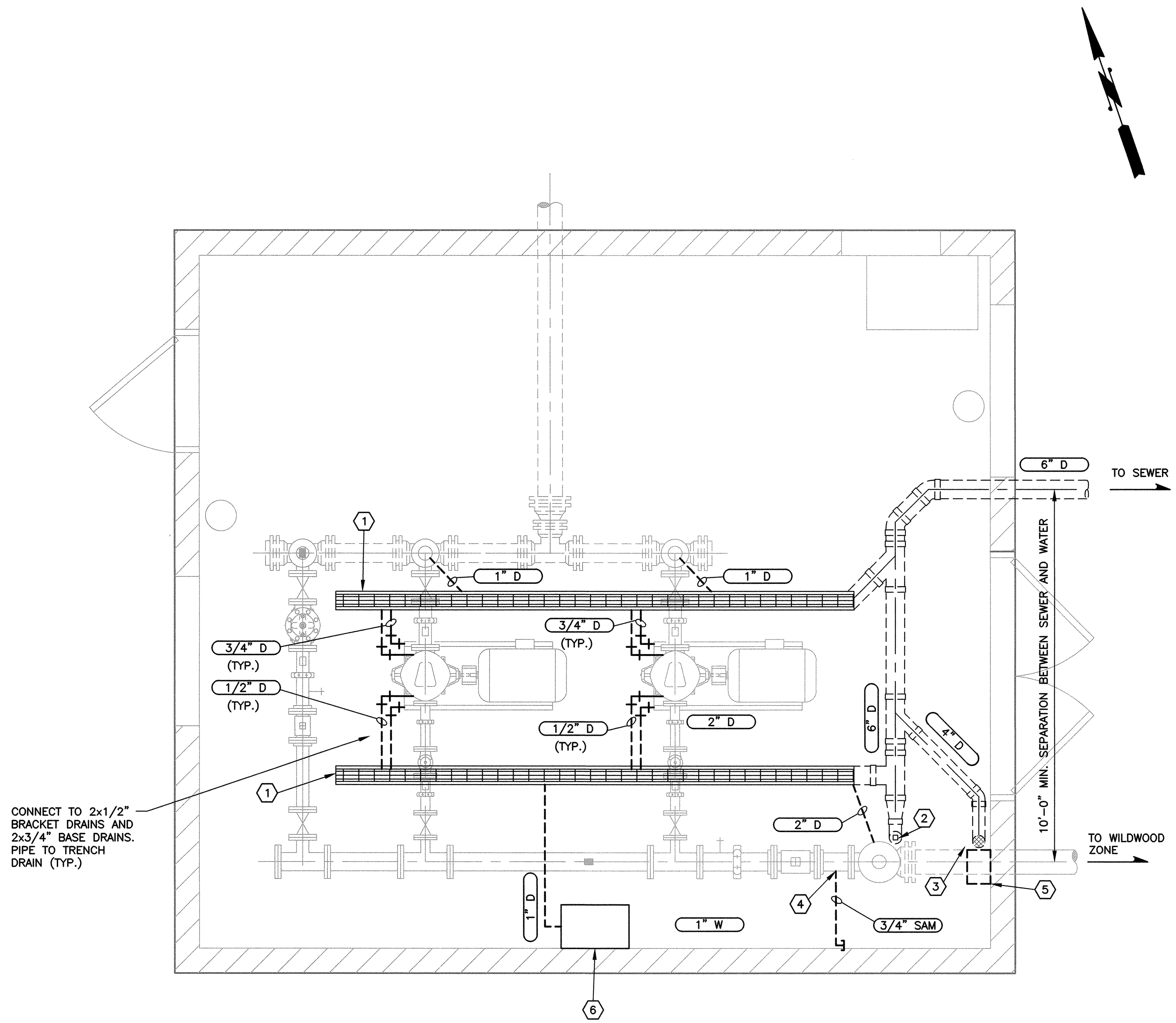


PLAN
SCALE: 1/2"=1'-0"

LEGEND:

1. TRENCH DRAIN (F / S1-4)
2. 4" CLEANOUT (8 / M-2)
3. EQUIPMENT DRAIN (7 / M-2)
4. SAMPLING POINT (5 / M-3)
5. CHLORINE ANALYZER (FUTURE)
6. DEHUMIDIFIER

0 1" 2"
TWO INCHES AT FULL SCALE.
IF NOT, SCALE ACCORDINGLY

Gray & Osborne, Inc.
CONSULTING ENGINEERS
701 DEXTER AVENUE NORTH SUITE 200
SEATTLE, WASHINGTON 98109 • (206) 284-0860

DATE:	APR 2015
SCALE:	NOTED
DRAWN:	MAN
CHECKED:	JND
APPROVED:	RLP

No.	REVISION	DATE	APPD

RUSSELL L. PORTER — STATE OF WASHINGTON — REGISTERED PROFESSIONAL ENGINEER — 4/27/15
JOSEF NASH DALAEN — STATE OF WASHINGTON — 46527 — REGISTERED PROFESSIONAL ENGINEER — 4-27-15

CITY OF ISSAQUAH
KING COUNTY WASHINGTON
MOUNT HOOD BOOSTER STATION
BOOSTER STATION PLUMBING

SHEET: **M1-4**
18 OF **45**

JOB NO.: 14543
DWG: PLUMBING

FAN SCHEDULE

BUILDING	ROOM NAME	UNIT NO.	TYPE	MANUFACTURER & MODEL NO.	VOLTAGE, PHASE, AND MCA	CONTROLS	STANDARD CFM	REMARKS
BOOSTER STATION	PUMP ROOM	01 EF 01	SIDEWALL EXHAUST FAN	GREENHECK CW–180–VG–2 OR EQUAL	2 HP 208V 1ø	01 T 01	4,100 CFM @ 0.5" S.P.	PROVIDE SHORT WALL HOUSING W/ GUARDS, GRAVITY DAMPER, THERMAL OVERLOAD, 45 DEGREE ALUMINUM WEATHERHOOD WITH PAINTED FINISH, ALUMINUM PROPELLER, AND NEMA 4 DISCONNECT. MOUNT BOTTOM OF FAN 7'–2" AFF.

CONTROL SCHEDULE

BUILDING	ROOM NAME	TYPE	EQUIPMENT NO.	CONTROLED EQUIPMENT	HEATING SET PT.	COOLING SET PT.	RH% SET PT	MANUFACTURER & MODEL NO.	VOLTAGE	MOUNTING HEIGHT	REMARKS
BOOSTER STATION	PUMP ROOM	LOW VOLTAGE	01 T 01	01 EF 01 01 MD 01	N/A	84°F	N/A	GREENHECK VARI GREEN CONTROL PN 475573 OR EQUAL	CONTROL VOLTAGE	48" AFF	SEE CONTROL DESCRIPTION
		CONTROL VOLTAGE	01 T 02	01 HT 01	55°F	N/A	N/A	CHROMALOX WCRT OR EQUAL	120V	48" AFF	

LOUVER SCHEDULE

BUILDING	ROOM NAME	LOUVER NO.	TYPE	MANUFACTURER & MODEL NO.	ROUGH OPENING SIZE (WxH)	REMARKS
BOOSTER STATION	PUMP ROOM	01 LVR 01	INTAKE LOUVER	GREENHECK AFJ–601 OR EQUAL	48" X 72"	PROVIDE INSECT SCREEN, KYNAR FINISH, CUSTOM COLOR, EXTENDED SILL, AND HEAVY DUTY MOTORIZED CONTROL DAMPER. MOUNT BOTTOM OF THE LOUVER 22" AFF.

HEATER SCHEDULE

BUILDING	ROOM NAME	HEATER NO.	TYPE	MANUFACTURER & MODEL NO.	VOLTAGE, AND PHASE	CONTROLS	KW OR BTU/H OUTPUT	MOUNTING BRACKET	REMARKS
BOOSTER STATION	PUMP ROOM	01 HT 01	UNIT HEATER	CHROMALOX LUH OR EQUAL	460V 3ø	01 T 02	5 KW	WALL	PROVIDE 120V CONTROL TRANSFORMER AND DISCONNECT SWITCH. MOUNT BOTTOM OF HEATER 8'–0" AFF.

CONTROL DAMPER SCHEDULE

BUILDING	ROOM NAME	DAMPER NO.	FRAME TYPE	MANUFACTURER & MODEL NO.	VOLTAGE, AND PHASE	NOMINAL SIZE (WxH)	ACTUATOR MFR.	ACTUATOR MOUNTING	NO. OF ACTUATORS	FAIL POSITION	REMARKS
BOOSTER STATION	PUMP ROOM	01 MD 01	CHANNEL	GREENHECK VCD–34 OR EQUAL	115 V 1ø	48" x 72"	BELLIMO OR EQUAL SEE NOTE 3	EXTERNAL	1	OPEN	PROVIDE HI–PRO POLYESTER FINISH.

DEHUMIDIFIER SCHEDULE

BUILDING	ROOM NAME	UNIT NO.	MANUFACTURER & MODEL NO.	VOLTAGE, PHASE AND MCA	CONTROLS	RELATIVE HUMIDITY SET POINT	MOUNTING	REMARKS
BOOSTER STATION	PUMP ROOM	01 DH 01	EBAC CD30E OR EQUAL	120 V 1ø 5 A	INTEGRAL	45%	WALL BRACKET	MOUNT BOTTOM AT 4'–0" A.F.F. (ABOVE HEIGHT OF MCC PANEL) AND ROUTE CONDENSATE DRAIN DOWN TO EQUIPMENT DRAIN.

GENERAL NOTES:

1. DUCT CONSTRUCTION AND EQUIPMENT SUPPORTS SHALL COMPLY WITH THE LATEST INTERNATIONAL MECHANICAL CODE AND WITH CURRENT SMACNA DUCT CONSTRUCTION STANDARDS.
2. PROVIDE ADEQUATE EQUIPMENT SERVICE CLEARANCE AROUND EQUIPMENT ACCORDING TO MFG'S RECOMMENDATIONS.
3. MANUFACTURER SHALL SIZE ACTUATOR FOR 01 MD 01.

CONTROL DESCRIPTION:

[01 EF 01] WALL MOUNTED EXHAUST FAN PROVIDES COOLING VENTILATION FOR THE BOOSTER PUMP STATION AND IS CONTROLLED BY A WALL MOUNTED THERMOSTAT [01 T 01] PROVIDED BY THE FAN MANUFACTURER. LOW EXHAUST FAN SPEED IS ENERGIZED ON TEMPERATURE RISE ABOVE THERMOSTAT [01 T 01] COOLING SET POINT AND IS INCREASED IN 1% INCREMENTS AS THE TEMPERATURE RISES.

[01 HT 01] WALL MOUNTED ELECTRIC HEATER PROVIDES HEAT FOR THE BOOSTER PUMP STATION AND IS CONTROLLED BY A WALL MOUNTED THERMOSTAT [01 T 02]. HEATER IS ENERGIZED ON TEMPERATURE FALL BELOW [01 T 02] HEATING SET POINT.

[01 MD 01] MOTORIZED DAMPER IS ENERGIZED BY TRANSFORMER CONTACTS ON [01 EF 01].

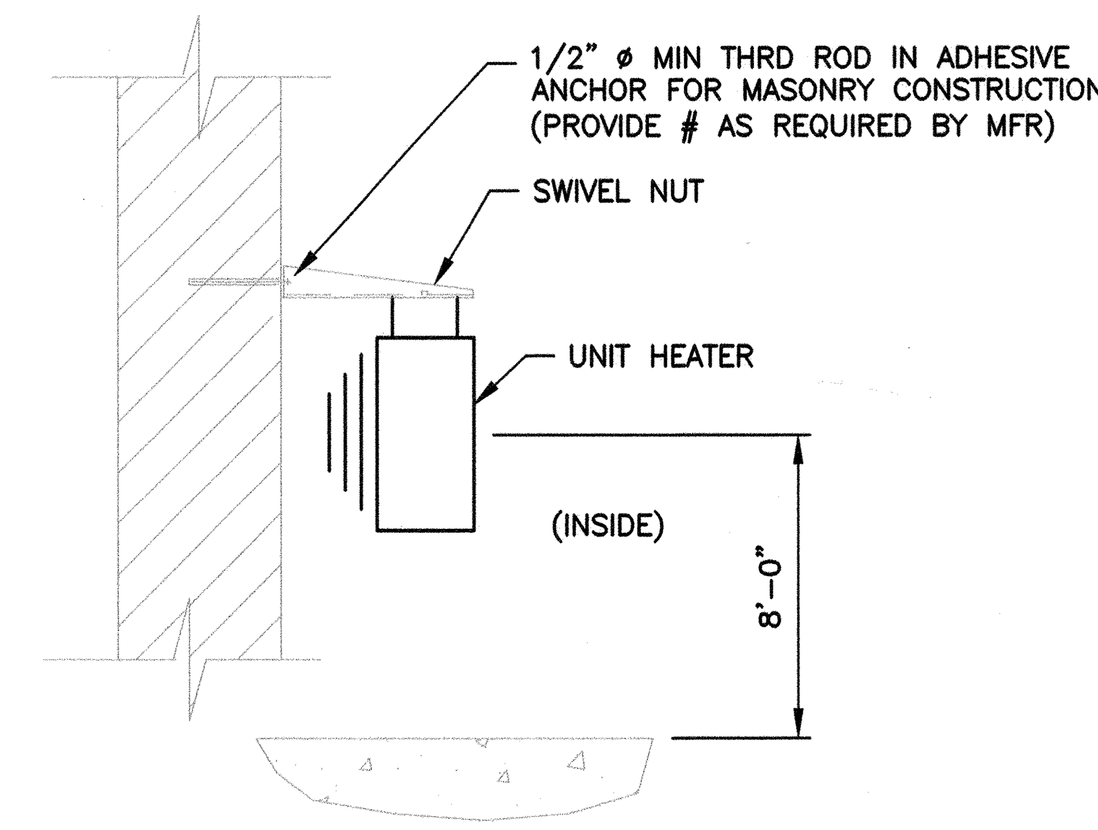
CITY OF ISSAQUAH · BUILDING REVIEW
APPROVED
ALL WORK SUBJECT TO FIELD INSPECTION

HVAC ABBREVIATIONS

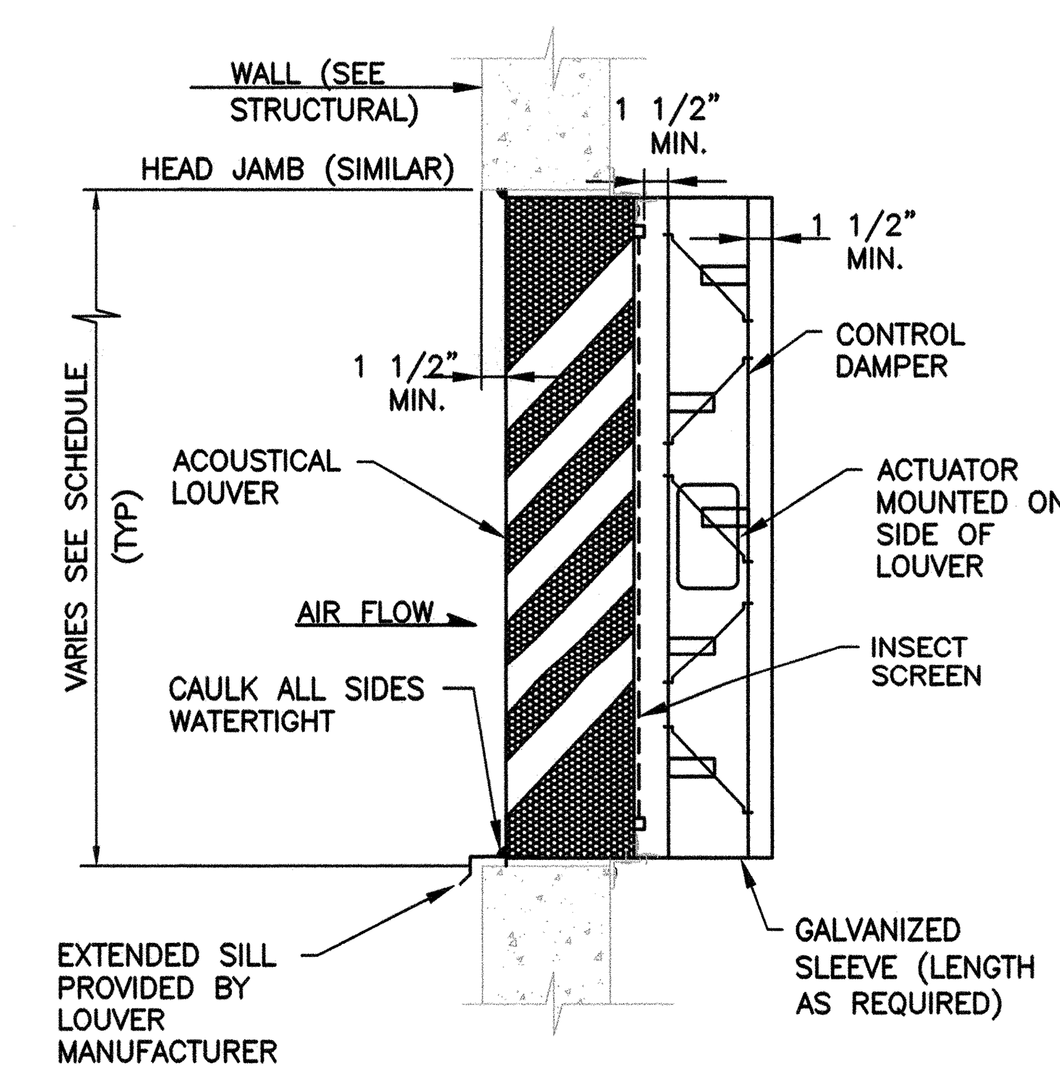
SYMBOL	DESCRIPTION
AFG	ABOVE FINISHED GRADE
AFF	ABOVE FINISHED FLOOR
BTU	BRITISH TERMAL UNIT
CFM	CUBIC FEE PER MINUTE
CU	CONDENSING UNIT
DN	DOWN
EF	EXHAUST FAN
ERV	ENERGY RECOVERY VENTILATOR
HWH	HEX WASHER HEAD
MCA	MINIMUM CIRCUIT AMPS
OA	OUTISDE AIR
SF	SUPPLY FAN
SP	STATIC PRESSURE
SS	STAINLESS STEEL
TYP	TYPICAL
WC	WATER COLUMN
WP	WALL PENETRATION

HVAC LEGEND

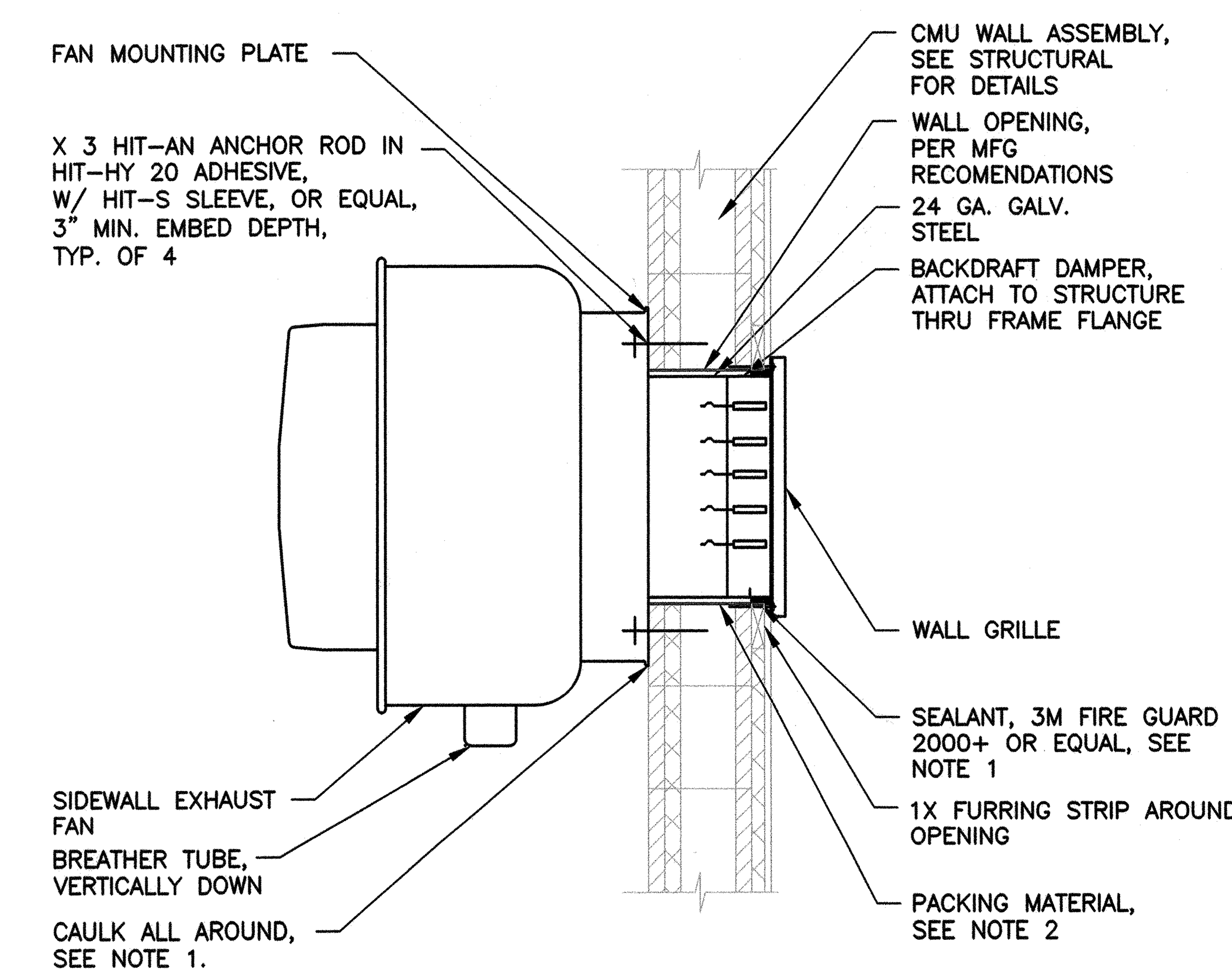
SYMBOL	DESCRIPTION
X YY ##	EQUIPMENT TAG (X–AREA; YY–EQUIPMENT ABBREVATION; ##–SEQUENTIAL NUMBER)
(T)	THERMOSTAT/TEMPERATURE TRANSMITTER
(M)	DAMPER ACTUATOR
ø	DIAMETER OR PHASE SIGN



UNIT HEATER (1/–)
NOT TO SCALE



ACOUSTICAL LOUVER WITH MOTORIZED DAMPER (2/–)
NOT TO SCALE



NOTES:

1. MINIMUM ½" THICK OF CAULK APPLIED IN ANNULUS FLUSH WITH BOTH SURFACES OF THE WALL.
2. 2" THICK 4 PCF MINERAL WOOL BATT FIRMLY PACKED INTO OPENING AS PERMANENT FORM. BACKER ROD OR PACKING MATERIAL TO BE RECESSED FROM BOTH SURFACES OF WALL AS REQUIRED TO ACCOMMODATE THE THICKNESS OF CAULKING.

SIDEWALL EXHAUST FAN (3/–)
NOT TO SCALE

0 1" 2"
TWO INCHES AT FULL SCALE. IF NOT, SCALE ACCORDINGLY

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701 DEXTER AVENUE NORTH SUITE 200
SEATTLE, WASHINGTON 98109 • (206) 284–0860

DATE: MAR 2015
SCALE: NOTED
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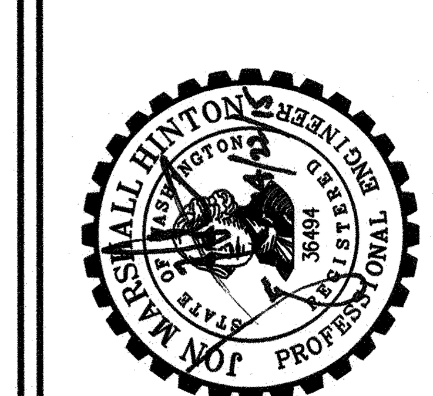
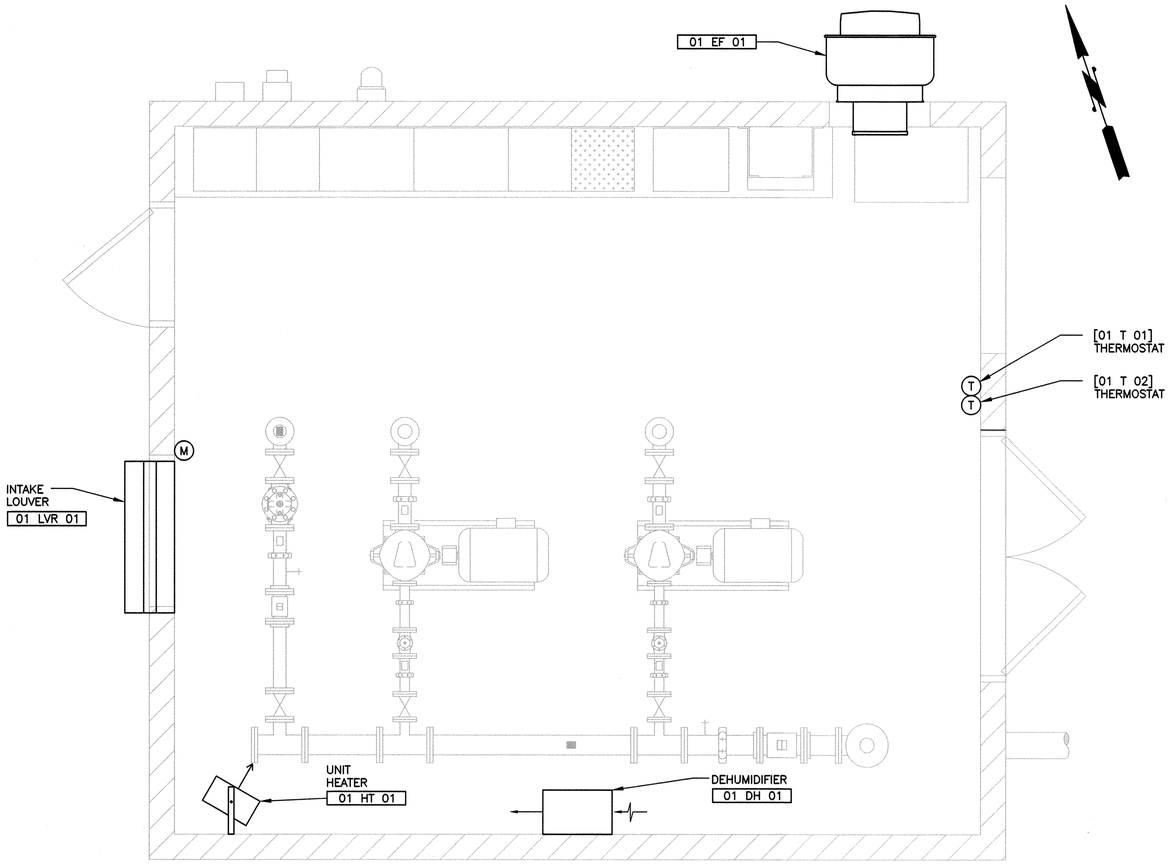
APPROVED: JMH

No.	REVISION	DATE	APPD



CITY OF ISSAQUAH
KING COUNTY WASHINGTON
MOUNT HOOD BOOSTER STATION
HVAC SCHEDULES, LEGEND, AND GENERAL NOTES

SHEET: H-1
20 OF 45
JOB NO.: 14543
DWG: H_BS



BOSTER STATION HVAC PLAN

SCALE: 1/2"=1'-0"

CITY OF ISSAQUAH - BUILDING REVIEW
APPROVED
ALL WORK SUBJECT
TO FIELD INSPECTION

NOTE:

PROVIDE SERVICE CLEARANCE AROUND DAMPER ACTUATOR.

0 1" 2"
TWO INCHES AT FULL SCALE.
IF NOT, SCALE ACCORDINGLY

Gray & Osborne, Inc.
CONSULTING ENGINEERS
701 DEXTER AVENUE NORTH SUITE 200
SEATTLE, WASHINGTON 98109 • (206) 284-0860

DATE: MAR 2015
SCALE: NOTED
DRAWN: MAN
CHECKED: JND
APPROVED: JMH

No.	REVISION	DATE	APPD

JOHN MARSHALL HINTON
STATE OF WASHINGTON
REGISTERED
36494
PROFESSIONAL ENGINEER

CITY OF ISSAQUAH
KING COUNTY WASHINGTON

MOUNT HOOD BOOSTER STATION

BOOSTER STATION HVAC PLAN

SHEET: H-2
21 OF 45

JOB NO.: 14543
DWG: H_BS

GENERAL STRUCTURAL NOTES

GENERAL
THE GENERAL CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND SITE CONDITIONS BEFORE STARTING WORK. THE ENGINEER SHALL BE NOTIFIED OF ANY DISCREPANCY. USE DETAIL MARKED "TYPICAL" WHEREVER APPLICABLE. CHANGES, OMISSIONS OR SUBSTITUTIONS ARE NOT PERMITTED WITHOUT WRITTEN APPROVAL OF THE ENGINEER. REFER TO THE SPECIFICATIONS FOR FURTHER REQUIREMENTS. DO NOT SCALE THE DRAWINGS.

ALL MATERIALS AND WORKMANSHIP SHALL CONFORM TO THE 2012 EDITION OF THE INTERNATIONAL BUILDING CODE (IBC).

THE DESIGN, ADEQUACY AND SAFETY OF ERECTION BRACING, SHORING, TEMPORARY SUPPORTS, ETC., IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR, AND HAS NOT BEEN CONSIDERED BY THE ENGINEER OF RECORD. THE CONTRACTOR IS RESPONSIBLE FOR THE STABILITY OF THE STRUCTURE PRIOR TO THE COMPLETION OF ALL SHEAR WALLS, ROOF AND FLOOR DIAPHRAGMS AND FINISH MATERIALS. THE CONTRACTOR SHALL PROVIDE THE NECESSARY BRACING TO PROVIDE STABILITY PRIOR TO THE APPLICATION OF THE ABOVE MENTIONED COMPONENTS.

THE GENERAL NOTES APPLY TO ALL STRUCTURES UNLESS NOTED OTHERWISE (UNO). LOCATION AND SIZE OF ANCHOR BOLTS FOR SPECIFIC EQUIPMENT SHALL BE SPECIFIED BY THE VENDOR. CONTRACTOR SHALL COORDINATE LOCATIONS OF STRUCTURAL OPENINGS, PENETRATIONS AND EMBEDDED ITEMS WITH THE MECHANICAL, ARCHITECTURAL, ELECTRICAL, PLUMBING AND VENTILATION SECTIONS OF THE DRAWINGS AND WITH SUPPLIERS AND SUBCONTRACTORS, AS MAY BE REQUIRED.

SPECIAL INSPECTION & TESTING
SPECIAL INSPECTIONS SHALL MEET THE REQUIREMENTS OF IBC CHAPTER 17.
SPECIAL INSPECTORS SHALL BE UNDER THE SUPERVISION OF A WASHINGTON REGISTERED CIVIL ENGINEER. OBSERVE THE WORK ASSIGNED FOR CONFORMANCE WITH APPROVED DRAWINGS AND SPECIFICATIONS.

FURNISH INSPECTION REPORTS TO THE BUILDING DEPARTMENT AND ENGINEER. DISCREPANCIES SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE CONTRACTOR FOR CORRECTION; THEN, IF NOT CORRECTED, TO THE BUILDING DEPARTMENT AND ENGINEER. SUBMIT A FINAL REPORT, SIGNED BY A WASHINGTON REGISTERED CIVIL ENGINEER, STATING THE WORK WAS IN CONFORMANCE WITH THE APPROVED DRAWINGS AND SPECIFICATIONS AND THE APPLICABLE WORKMANSHIP PROVISIONS OF IBC.

SPECIAL INSPECTION REQUIRED:
STEEL: IN ACCORDANCE WITH SECTION 1705.11.1
CONCRETE: IN ACCORDANCE WITH SECTION 1705.3 AND TABLE 1705.3
MASONRY: IN ACCORDANCE WITH SECTION 1705.4
WOOD: IN ACCORDANCE WITH SECTION 1705.5
SOIL: IN ACCORDANCE WITH SECTION 1705.6

SHOP DRAWINGS
SHOP DRAWINGS, WHERE REQUIRED, SHALL BE CHECKED AND APPROVED BY THE GENERAL CONTRACTOR PRIOR TO SUBMITTING FOR ENGINEER REVIEW. SHOP DRAWINGS SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW OF DESIGN INTENT, PRIOR TO FABRICATION. GENERAL CONTRACTOR IS RESPONSIBLE FOR VERIFICATION AND COORDINATION OF DIMENSIONS AND DETAILS FOR EACH SUBCONTRACTOR.

DESIGN LOADS
ROOF SNOW LOAD:
DESIGN SNOW LOAD,Ps..25 PSF
SNOW LOAD IMPORTANCE FACTOR, Is..........................1.20

WIND DESIGN DATA:
ULTIMATE DESIGN WIND SPEED (3-SECOND GUST).......115 MPH
RISK CATEGORY..IV
WIND IMPORTANCE FACTOR, Iw.......................................1.0
WIND EXPOSURE..C

EARTHQUAKE DESIGN DATA
RISK CATEGORY..IV
SEISMIC IMPORTANCE FACTOR, Ie...............................1.50

SITE CLASS..D
SPECTRAL RESPONSE COEFFICIENTS
Sds..........................0.878 g
Sd1..........................0.497 g
SEISMIC DESIGN CATEGORY...D

FOUNDATION DATA:
PER GEOTECHNICAL REPORT NO. 14543, BY PanGEO, INC., DATED OCTOBER 13, 2014.

ALLOWABLE BEARING PRESSURE FOR SHALLOW FOUNDATION SUPPORT:......................2500 PSF
PASSIVE EARTH PRESSURE...350 PCF
COEFFICIENT OF FRICTION...0.40

EXTEND ALL EXTERIOR FOOTINGS 1'-6" MINIMUM BELOW FINISHED GRADE. BOTTOM OF ALL FOOTINGS TO BEAR ON A 1'-0" MINIMUM COMPACTED CRUSHED ROCK, EXTENDING AT LEAST 2'-0" OUTSIDE THE PERIMETERS OF THE FOOTINGS. NO FOOTING SHALL BEAR HIGHER THAN 1 VERTICAL TO 1.5 HORIZONTAL SLOPE ABOVE ANY EXCAVATION, EXISTING OR PLANNED. CONTRACTOR SHALL PROVIDE TEMPORARY SHORING TO PREVENT MOVEMENT OF WALLS IF BACKFILL IS PLACED BEFORE FLOOR SYSTEM IS IN PLACE. THERE SHALL BE 95% COMPACTION (ASTM D1557 MODIFIED PROCTOR DENSITY) OF ALL BACKFILL SOIL UNDER SLABS ON GRADE.

CONTRACTOR SHALL BECOME FAMILIAR WITH THE SOIL CONDITION BY READING THE SOIL REPORT.

MASONRY
SPECIFIED COMPRESSIVE STRENGTH OF MASONRY ASSEMBLY: f'm=1500 PSI.
CONCRETE MASONRY UNITS: ASTM C90, GRADE N-1, MEDIUM WEIGHT, RUNNING BOND.
MORTAR: ASTM C270, TYPE S, MIN COMPRESSIVE STRENGTH OF 1900 PSI AT 28 DAYS. GROUT: ASTM C476 WITH A MIN COMPRESSIVE STRENGTH OF 2000 PSI AT 28 DAYS. FILL ALL CELLS WITH GROUT, UNO, IN LIFTS NOT EXCEEDING 4'-0" IN HEIGHT. ALL REINFORCEMENT SHALL BE IN PLACE PRIOR TO GROUTING WITH VERTICAL BARS HELD AT TOP, BOTTOM, AND 192 DIAMETERS MAXIMUM ON CENTERS. CONTRACTOR SHALL PROVIDE TEMPORARY BRACING FOR MASONRY WALLS, AS REQUIRED, UNTIL CONNECTIONS TO ROOF DIAPHRAGM ARE COMPLETED.

CAST-IN-PLACE CONCRETE
CONCRETE SHALL HAVE THE FOLLOWING PROPERTIES:
28-DAY STRENGTH f'c=3,500 PSI, (UNO)
AIR ENTRAINMENT: 5%-7%
MAXIMUM SLUMP: 3" FOR SLABS FOOTINGS, 4" FOR WALLS, COLUMNS AND BEAMS. CONSTRUCTION TO BE IN ACCORDANCE WITH ACI 318, "PART 2-STANDARD FOR TESTS AND MATERIALS" AND "PART 3 - CONSTRUCTION REQUIREMENTS."

SUBMIT MIX DESIGN FOR REVIEW AND PROVIDE NOT LESS THAN 6 SACKS OF CEMENT PER CUBIC YARD FOR ALL CONCRETE WITH MAXIMUM W/C=0.45.

REINFORCING STEEL
DEFORMED BARS: ASTM A615, GRADE 60 (GRADE 40 FOR #3).
UNLESS OTHERWISE NOTED ON THESE DRAWINGS, MINIMUM CONCRETE COVER FOR REINFORCING BARS SHALL BE AS FOLLOWS:
CONCRETE CAST AGAINST SOIL=3".
FORMED CONCRETE AGAINST SOIL=2".
WALLS, COLUMNS AND BEAMS EXPOSED TO WATER & WEATHER=2".
WALLS, COLUMNS AND BEAMS DRY CONDITION=1 1/2".

PROVIDE 2-#5 MIN UNO TRIM BARS AROUND ALL OPENINGS IN CONCRETE WALLS OR SLAB EXTENDING 2'-6" PAST CORNERS, TYP AT TIME OF CONCRETE PLACEMENT, REINFORCING SHALL BE FREE OF MUD, OIL, OR OTHER NONMETALLIC COATINGS THAT MAY DECREASE BOND.

FIELD WELDING OF REINFORCING BARS IS NOT ALLOWED ON THIS JOB.

SUBMIT SHOP DRAWINGS OF REINFORCING STEEL FOR REVIEW BY THE ENGINEER PRIOR TO FABRICATION. REINFORCING SHALL BE DETAILED IN ACCORDANCE WITH ACI 315 AND 318 (LATEST EDITION).

STRUCTURAL STEEL AND MISCELLANEOUS METALS
W SHAPES: ASTM A992, Fy=50 KSI
PLATES, BARS, AND ANGLES: ASTM A36, Fy=36 KSI.

ALL BOLTS SHALL BE GALVANIZED ASTM A325-N BOLTS, UNO AS ASTM A307 MACHINE BOLTS (MB)
ADHESIVE ANCHORS: HILTI HIT-HY 200 AND HILTI HIT-HY 70 OR APPROVED EQUAL, UNO. INSTALL PER MANUFACTURER'S RECOMMENDATIONS.

HEADED ANCHOR STUDS (HAS): ASTM A108, Fy=50 KSI, END WELDED PER MANUFACTURER'S RECOMMENDATIONS.
ALL ANCHOR RODS: ASTM F1554, Fy=36 KSI, UNO ALL ANCHOR RODS MUST BE ACCURATELY PLACED IN THEIR FINAL LOCATION PRIOR TO POURING CONCRETE, "WET STICKING" OF ANCHOR RODS IS NOT ALLOWED.

WELDING ELECTRODES OR WIRES: AWS A5.1 OR A5.5, E70XX; AWS A5.17, E70S-X; AWS A5.20, E7XT-X.
ALL WELDS SHALL BE 3/16" MINIMUM UNO.

ALL WELDING SHALL BE PERFORMED BY AWS/WABO CERTIFIED WELDERS.

ERECTION AND FABRICATION IN ACCORDANCE WITH AISC "SPECIFICATIONS FOR DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS." WELDING SHALL CONFORM TO AWS/WABO "CODE FOR ARC AND GAS WELDING IN BUILDING CONSTRUCTION." ALL WELDING SHALL BE PERFORMED BY AWS/WABO CERTIFIED WELDERS.

ALL COLUMNS AND BEAMS TO BE FROM UNSPLICED LENGTHS UNO ON THE DRAWINGS. SUBMIT SHOP DRAWINGS SHOWING SIZES, DIMENSIONS AND REQUIRED CONNECTION DETAILS FOR REVIEW BY THE ENGINEER PRIOR TO FABRICATION.

GRATING
ALUMINUM GRATING SHALL BE SERRATED 6063 STANDARD PER ASTM B221 ALUMINUM ALLOY. GRATING BAR SIZES AND SPACING, OVERALL DIMENSIONS, CUTOUTS FOR OBSTRUCTIONS AND DIRECTIONS OF BEARING BARS SHALL BE AS INDICATED ON THE PLANS. GRATING SHALL SAFELY SUSTAIN:
UNIFORMLY DISTRIBUTED LOAD: 125 PSF
MAXIMUM DEFLECTION: 1/2 INCH

WOOD
ROOF SHEATHING SHALL BE 5/8" (NOMINAL) MIN (UNO) APA RATED SHEATHING 24/0, EXPOSURE 1, SIZED FOR SPACING. INSTALL PANELS WITH 1/4" SPACING AT END JOINTS AND 1/8" SPACING AT EDGE JOINTS MIN INSTALL PLYWOOD SHEATHING WITH FACE GRAIN PERPENDICULAR TO SUPPORTS.

SAWN LUMBER: HEM-FIR #1 OR BETTER. WWPA GRADING RULES. ALL DIMENSIONS NOTED ARE NOMINAL. WOOD BEARING ON OR WITHIN 1" OF CONCRETE OR CMU, OR WITHIN 6" OF EARTH, SHALL BE TREATED WITH AN APPROVED PRESERVATIVE. ALL NAILS ARE TO BE "COMMON." ALL NAILS IN TREATED TIMBER SHALL BE GALVANIZED. ALL FRAMING CONNECTORS NOTED ARE PER SIMPSON STRONG TIE COMPANY INC. OR ENGINEER APPROVED EQUAL. SEE MANUFACTURER'S REQUIREMENTS.

TREATED LUMBER SHALL BE BRANDED WITH A QUALITY CONTROL AGENCY MARK BY AMERICAN WOOD PRESERVERS BUREAU OR EQUAL.

PREFABRICATED WOOD TRUSSES
ROOF TRUSSES SHALL BE DESIGNED BY THE CERTIFIED MANUFACTURER FOR THE SPANS AND CONDITIONS SHOWN ON THE DRAWINGS AND THE LOADS LISTED BELOW.
MAXIMUM TRUSS SPACING: 24" O.C.

TRUSS LOADING UNLESS NOTED OTHERWISE ON DRAWINGS:
TOP CHORD LIVE LOAD=25 PSF.
TOP CHORD DEAD LOAD=5 PSF.
BOTTOM CHORD LIVE LOAD=0 PSF.
BOTTOM CHORD DEAD LOAD=10 PSF.
NET WIND UPLIFT LOAD=21 PSF (ASD).
ADDITIONAL LIVE LOAD: SNOW LOAD DUE TO DRIFTING SHALL BE INCLUDED AS SPECIFIED ON THE DRAWINGS.

TRUSSES TO BE FABRICATED BY A CERTIFIED MEMBER OF THE TRUSS PLATE INSTITUTE. DESIGN, FABRICATION AND ERECTION TO CONFORM TO THE TRUSS PLATE INSTITUTE STANDARDS. CONNECTOR PLATES SHALL BE ICC APPROVED WITH A MINIMUM SIZE OF 3"x5". ALL CHORD MEMBERS SHALL HAVE LUMBER GRADE STAMPS; ALL WEB MEMBERS SHALL HAVE GRADE STAMPS OR ALL WEB MEMBERS, FOR A GIVEN TRUSS, SHALL BE MADE FORM THE SAME LUMBER GRADE WITH AT LEAST 50% OF THE WEB MEMBERS BEARING A GRADE STAMP. TRUSS DESIGNS AND ERECTION PLANS SHALL BE BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF WASHINGTON. ERECTION PLANS SHALL SHOW TRUSS SPACING, TRUSS MARK NUMBERS (CORRESPONDING TO THE DESIGN CALCULATIONS), CONCENTRATED LOADS, PERMANENT BRACING/BRIDGING AS REQUIRED BY THE TRUSS DESIGN AND ERECTION BRACING. SHOP DRAWING SHALL INCLUDE, FOR EACH TYPE OF TRUSS, DIMENSIONS AND CONFIGURATIONS, NOMINAL LUMBER SIZE AND GRADE, SPECIFICATIONS FOR CONNECTOR PLATE USED, SIZE AND LOCATION OF EACH CONNECTOR AT EACH JOINT AND AMOUNT OF CAMBER IF REQUIRED. DESIGN CALCULATIONS, SHOP DRAWINGS AND ERECTION PLANS SHALL BE SUBMITTED FOR REVIEW BY THE ENGINEER PRIOR TO FABRICATION.

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SUPPLEMENTAL STRUCTURAL ABBREVIATIONS:

ADH	ADHESIVE	DIAPH	DIAPHRAGM	JST	JOIST	SPC	SPACING
ABV	ABOVE	DO	DITTO (DO OVER)	K	KIPS (1000 POUNDS)	SS	STAINLESS STEEL
AFF	ABOVE FINISH FLOOR	DWG	DRAWING	LAT	LATERAL	STGR	STAGGER
ADD'L	ADDITIONAL	DWL	DOWEL	LDGR	LEDGER	STIFF	STIFFENER
ADJ	ADJACENT	EA	EACH	LLH	LONG LEG HORIZONTAL	STIRR	STIRRUP
AL	ALUMINUM	EXIST	EXISTING MEMBER	LLV	LONG LEG VERTICAL	STRUCT	STRUCTURE(AL)
APPRX	APPROXIMATE	EF	EACH FACE	LS	LAG SCREW	SYM	SYMMETRICAL
ARCH	ARCHITECTURAL	EJ	EXPANSION JOINT	LSL	LAMINATED STRAND LUMBER	T	TOP
AR	ANCHOR ROD	EMBD	EMBED(MENT)	LT WT	LIGHT WEIGHT	T&G	TONGUE AND GROOVE
@	AT	EN	EDGE NAILING	LVL	LAMINATED VENEER LUMBER	TMPRY	TEMPORARY
BOT	BOTTOM	ENG	ENGINEER	MAS	MASONRY	TN	TOE NAIL
BEL	BELOW	EQ	EQUAL	MAT'L	MATERIAL	T.O.	TOP OF
BF	BRACED FRAME	ES	EACH SIDE	MB	MACHINE BOLT (A307)	TRANS	TRANSVERSE
BM	BEAM	EXT	EXTERIOR	MFR	MANUFACTURER	UNO	UNLESS NOTED OTHERWISE
BN	BOUNDRY NAIL	FFE	FINISHED FLOOR ELEVATION	MRF	MOMENT RESISTING FRAME	VFY	VERIFY
BNDRY	BOUNDRY	FN	FIELD NAILING	MTL	METAL	WHS	WELDED HEADED STUD
BO	BOTTOM OF	FND	FOUNDATION	(N)	NEW MEMBER	WP	WORK POINT
BRDG	BRIDGE(ING)	FO	FACE OF	NS	NEAR SIDE	WS	WESTERN SERIES
BRG	BEARING	FRM'G	FRAMING	OH	OVERHANG	WTS	WELDED THREADED STUD
CAM	CAMBER(ED)	FS	FAR SIDE	ORNT	ORIENTATE (ION)	X-STG	EXTRA STRONG
CANT	CANTILEVER(ED)	FTG	FOOTING	PAR	PARALLEL	XX-STG	DOUBLE EXTRA STRONG
CDF	CONTROLLED DENSITY FILL	GA	GAUGE	P/C	PRECAST CONCRETE		
CG	CENTER OF GRAVITY	GB	GRADE BEAM	PERP	PERPENDICULAR		
CIP	CAST IN PLACE	GLB	GLUE-LAMINATED BEAM	PSL	PARALLEL STRAND LUMBER		
CJ	CONSTRUCTION JOINT	HAS	HEADED ANCHOR STUDS	PT	PRESSURE TREAT(ED)		
COL	COLUMN	HDR	HEADER	P/T	POSTTENSIONED		
CONST	CONSTRUCTION	HF	HEM-FIR	QTY	QUANITY		
CONT	CONTINUOUS	HGR	HANGER	REF	REFERENCE		
CTSK	COUNTERSINK	HSB	HIGH STRENGTH BOLT (A325 UNO)	REINF	REINFORCEMENT		
DBL	DOUBLE	HSS	TUBING STRUCTURAL	SHT	SHEET		
D	DEPTH	IBC	INTERNATIONAL BUILDING CODE	SHTG	SHEATHING		
d	PENNY (NAILS)	I.F.	INSIDE FACE	SIM	SIMILAR		
DF	DOUGLAS FIR	INT	INTERIOR	SKW	SKEW(ED)		
DIAG	DIAGONAL						

0 1" 2"
TWO INCHES AT FULL SCALE.
IF NOT, SCALE ACCORDINGLY

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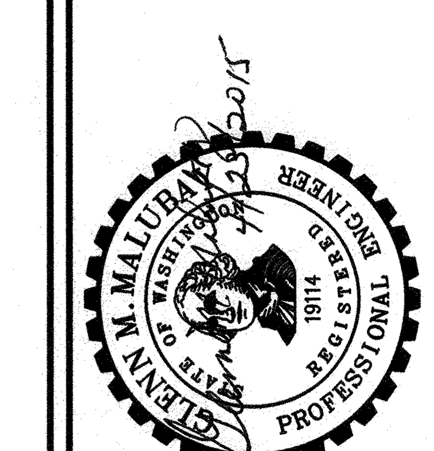
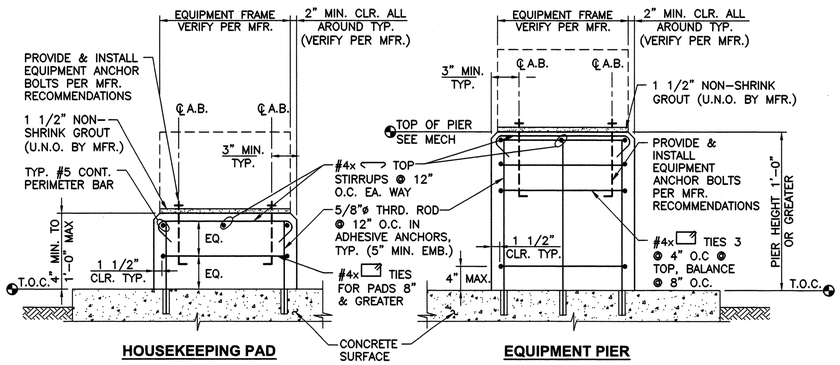


CITY OF ISSAQUAH
KING COUNTY WASHINGTON
MOUNT HOOD BOOSTER STATION
GENERAL STRUCTURAL NOTES, AND SUPPLEMENTAL STRUCTURAL ABBREVIATIONS

SHEET: S-1
22 OF 45
JOB NO.: 14543
DWG: S_STND

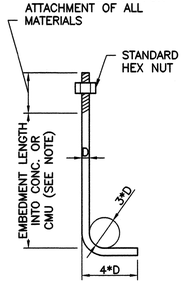


NOTES:

1. CHAMFER ALL EXPOSED CORNERS OF HOUSEKEEPING PADS AND EQUIPMENT PIERS.
2. FOR PIER HEIGHT LESS THAN 1'-0" SEE HOUSEKEEPING PAD DETAIL

TYP. HOUSEKEEPING PAD & EQUIPMENT PIER DETAILS

1 TYP — NOT TO SCALE



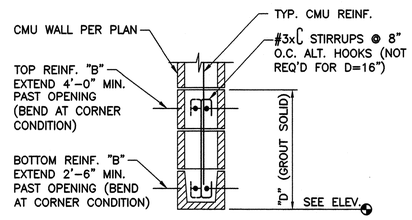
BOLT DIA. "D"	MINIMUM EMBEDMENT: ANCHOR RODS IN HORIZ. SURFACE	MINIMUM EMBEDMENT: ANCHOR RODS IN VERT. SURFACE
1/2"	8"	7"
5/8"	8"	7"
3/4"	12"	7"
7/8"	12"	8"
1"	14"	9"
1 1/8"	14"	10"

NOTE:

ANCHOR ROD EMBEDMENT IN VERTICAL SURFACE APPLIES TO CONCRETE ONLY.

TYP. ANCHOR ROD DETAIL

2 TYP — NOT TO SCALE

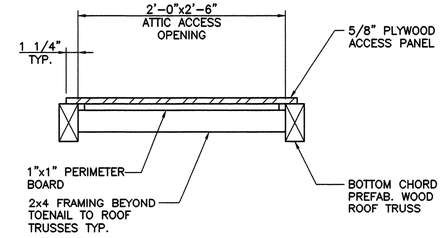


LINTEL SCHEDULE			
MARK	MASONRY OPNG.	"D" (LINTEL HT.)	"B" (REINF.)*
L1	3'-4" OR LESS	16"	2-#5 BOT. ONLY
L2	4'-8" OR LESS	16"	2-#5 T. & 2-#5 B.
L3	6'-8" AT CRANE SUPPORT	32"	2-#5 T. & 2-#5 B.

*OPTIONAL - USE 1-#7 FOR INSULATED CMU WALL

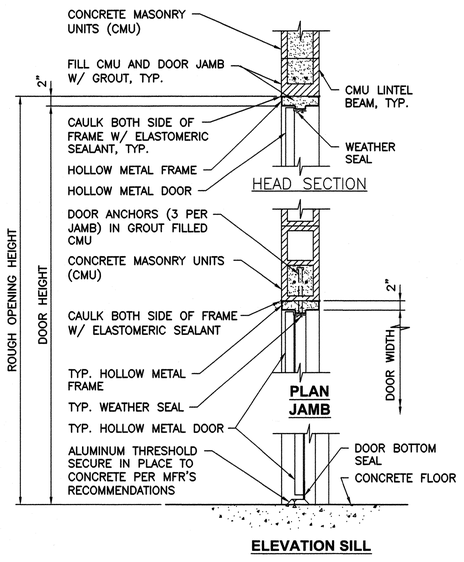
CMU LINTEL SCHEDULE AND DETAIL

3 TYP — NOT TO SCALE



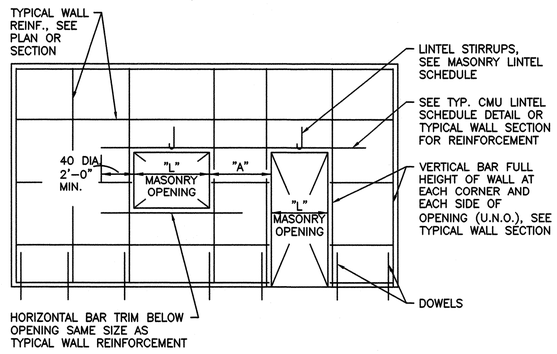
TYPICAL ATTIC ACCESS DETAIL

4 TYP — NOT TO SCALE



METAL DOOR/CMU WALL DETAIL

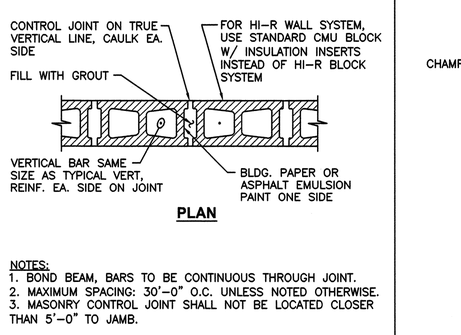
5 TYP — SCALE: 3/4"=1'-0"



NOTE: WHERE DISTANCE "A" IS 1'-4" OR LESS, PROVIDE #3 TIES AT 8" O.C. FULL HEIGHT OF THE SMALLER OF THE TWO OPENINGS

CMU WALL REINFORCEMENT PLACEMENT DETAIL

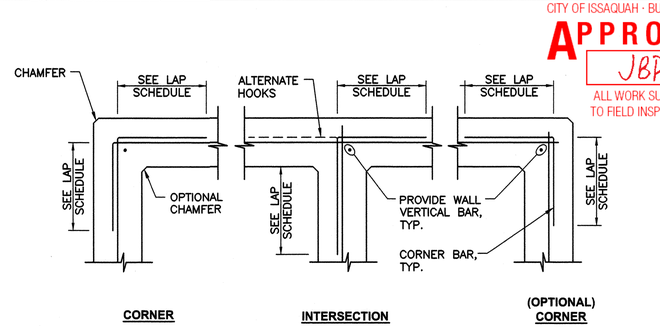
6 TYP — NOT TO SCALE



PLAN

NOTES:
1. BOND BEAM, BARS TO BE CONTINUOUS THROUGH JOINT.
2. MAXIMUM SPACING: 30'-0" O.C. UNLESS NOTED OTHERWISE.
3. MASONRY CONTROL JOINT SHALL NOT BE LOCATED CLOSER THAN 5'-0" TO JAMB.

WALL CONTROL JOINT



CORNER — INTERSECTION — (OPTIONAL) CORNER

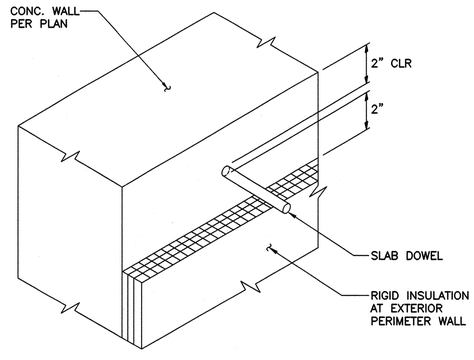
SINGLE CURTAIN

7 TYP — NOT TO SCALE

REINF.	LAP
#4	2'-4"
#5	3'-0"
#6	3'-6"
#7	4'-3"
#8	4'-10"
#9	5'-3"
#10	6'-6"
#11	8'-0"

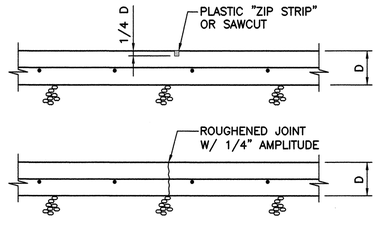
TYP. LAP SCHEDULE

8 TYP — NOT TO SCALE



TYPICAL CONCRETE COVER AT SLAB REINF. & INSULATION

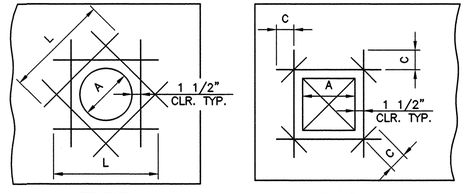
9 TYP — NOT TO SCALE



OPTIONAL

TYP. SLAB ON GRADE CONTROL JOINT DETAIL

10 TYP — NTS



TYPE I — TYPE II

OPENING SIZE (A)	TYPE I: MINIMUM BAR LENGTH (L)	TYPE I: BAR SIZE	TYPE II: (C)	TYPE II: BAR SIZE
0" - 12"	3' - 9"	#5	1' - 0"	MATCH VERTICAL BARS OR LARGEST BAR IN SLABS OR WALKWAYS
13" - 18"	4' - 9"	#6	1' - 3"	
19" - 24"	6' - 9"	MATCH VERTICAL BARS OR LARGEST BAR IN SLABS OR WALKWAYS	2' - 6"	
25" - 36"	7' - 9"		2' - 6"	
36" ———	8' - 9"		2' - 6"	

NOTE:
ALL BARS, EACH FACE. USE THESE BAR SIZES UNLESS NOTED OTHERWISE.

TYP. PIPE PENETRATION REINFORCING DETAIL

11 TYP — NTS

0 1" 2"

TWO INCHES AT FULL SCALE. IF NOT, SCALE ACCORDINGLY

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CITY OF ISSAQUAH
KING COUNTY WASHINGTON
MOUNT HOOD BOOSTER STATION
TYPICAL DETAILS

SHEET: S-2
23 OF 45

JOB NO.: 14543
DWG: S_STND

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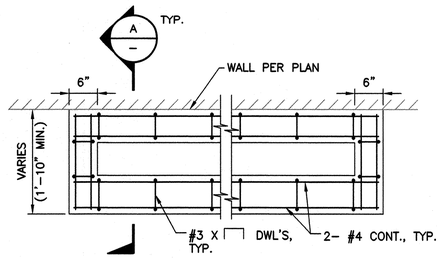
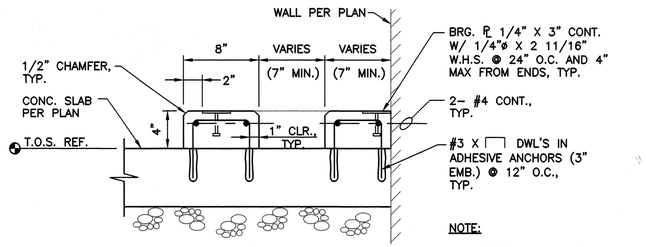


REINFORCEMENT PLACEMENT PLAN

SCALE: 3/4"=1'–0"



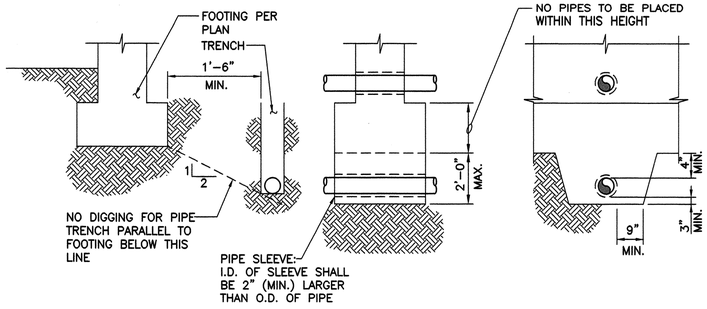
NOTE:

CONCRETE SHALL HAVE 28–DAY STRENGTH f'c=3,000 PSI.

A / – **SECTION**

SCALE: 1 1/2"=1'–0"

1 / TYP **TYPICAL MCC HOUSEKEEPING PAD DETAIL**

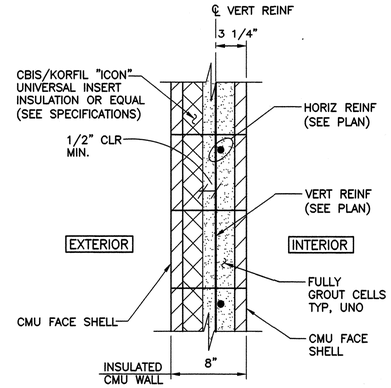


NOTES:

1. SEE NOTES ON FOUNDATION PLAN FOR ADDITIONAL INFORMATION.
2. PIPE & CONDUIT MUST RUN PERPENDICULAR THRU FOUNDATION WALL.

2 / TYP **TYPICAL FOOTING AT PIPE OR CONDUIT**

NOT TO SCALE



TYPICAL 8" INSULATED CMU WALL DETAIL

3 / TYP

SCALE: 1 1/2"=1'–0"

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0 1" 2"

TWO INCHES AT FULL SCALE. IF NOT, SCALE ACCORDINGLY

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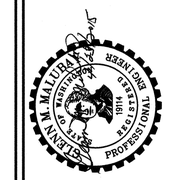

CITY OF ISSAQUAH
KING COUNTY WASHINGTON

MOUNT HOOD BOOSTER STATION

TYPICAL DETAILS

SHEET: S-3
24 OF 45

JOB NO.: 14543
DWG: S_STND

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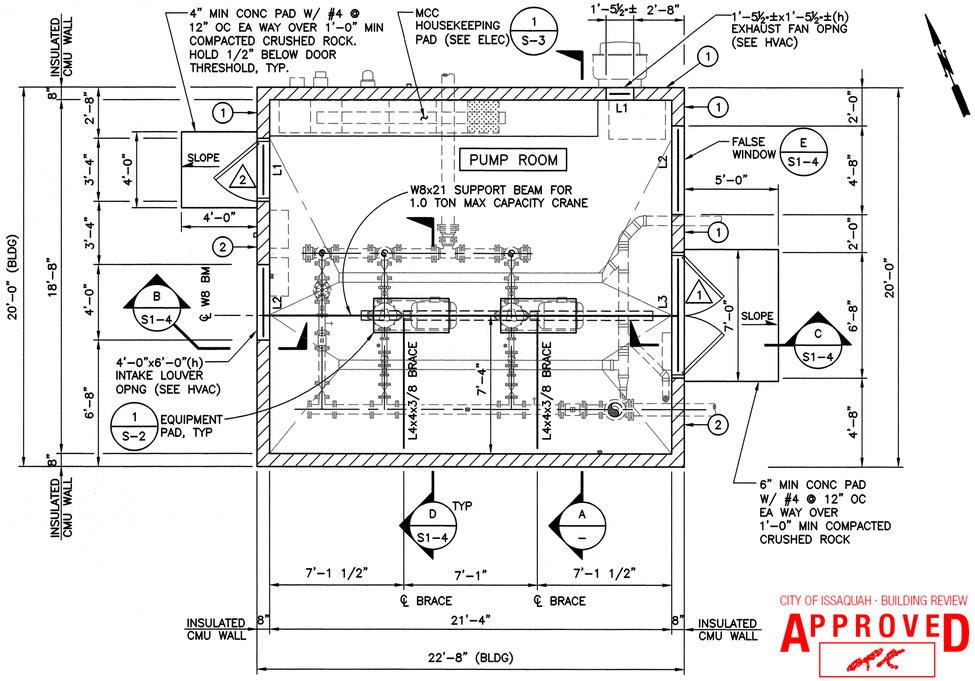

FLOOR PLAN

SCALE: 1/4"=1'-0"

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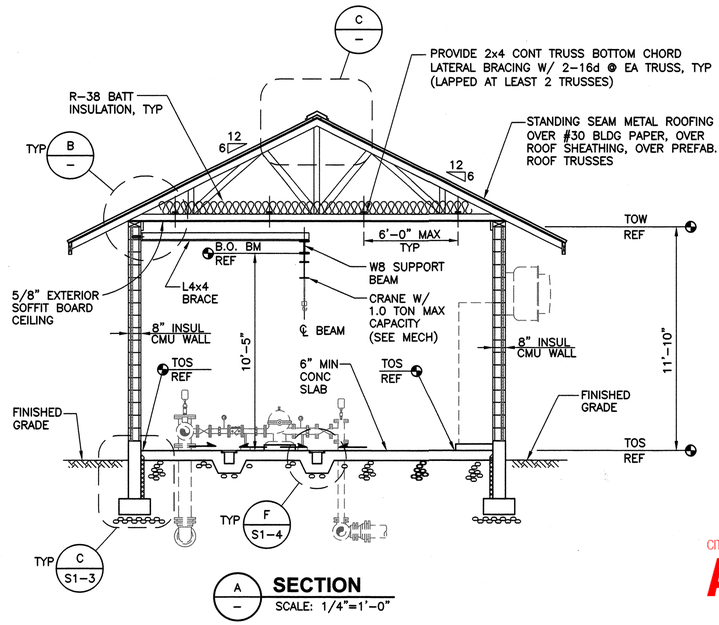
APPROVED
ALL WORK SUBJECT TO FIELD INSPECTION



SECTION

SCALE: 1/4"=1'-0"

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PROJECT DATA

PROJECT DESCRIPTION:

NEW ONE STORY CMU BUILDING WITH PREMANUFACTURED WOOD TRUSS ROOF FRAMING, METAL ROOFING, AND CONCRETE FOUNDATION.

BOOSTER STATION BUILDING:
AREA: 20'-0" x 22'-8" = 453.00 S.F.

CODES:

2012 INTERNATIONAL BUILDING CODE

ROOM TYPE	AREA, FT²	USE/OCCUPANCY	CONSTRUCTION TYPE
PUMP ROOM	398 S.F.	F-2	VB

WALL TYPES & LEGEND

L – LINTEL TYPE (SEE LINTEL SCHEDULE) (3 / S-2)

8" INSULATED CMU WALL, UNO.

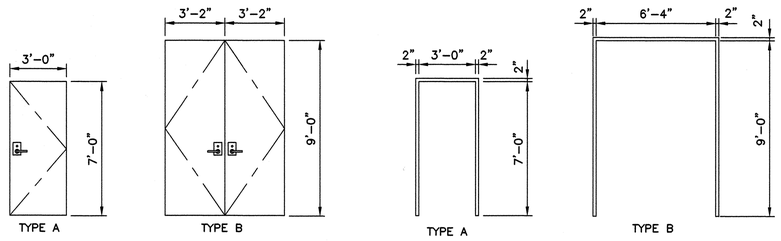
(1) 8" INSULATED CMU WALL W/ #5 VERTS @ 8" OC & #5 HORIZ @ 16" OC (GROUTED SOLID)

(2) 8" INSULATED CMU WALL W/ #5 @ 16" OC EA WAY (GROUTED SOLID)

(1) DOOR NUMBER (SEE DOOR SCHEDULE)

NOTES:

1. ALL DIMENSIONS ARE TO FACE OF FRAMING AND CMU WALL UNLESS NOTED OTHERWISE.
2. NOT ALL WALL PENETRATIONS, MAY BE SHOWN. COORDINATE SIZE AND LOCATIONS WITH MECHANICAL, PLUMBING, ELECTRICAL AND HVAC DRAWINGS.



DOOR TYPE

NTS

DOOR FRAME TYPE

NTS

DOOR SCHEDULE

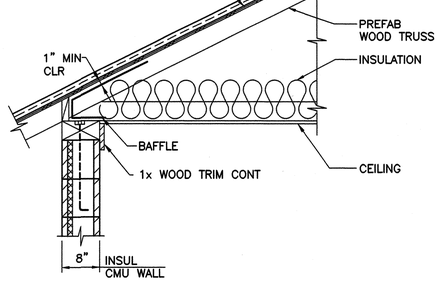
NO.	MATERIAL & TYPE	DOOR SIZE: WIDTH x HEIGHT x THICKNESS	DOOR TYPE	FRAME TYPE	FRAME GAUGE	FINISH	HARDWARE GROUP	U-VALUE
1	HOLLOW METAL INSULATED	PR 3'-2" x 9'-0" x 1 3/4"	B	B	16	PAINT	1	0.34
2	HOLLOW METAL INSULATED	3'-0" x 7'-0" x 1 3/4"	A	A	16	PAINT	2	0.34

PR –PAIR

ROOM MATERIAL AND FINISH SCHEDULE

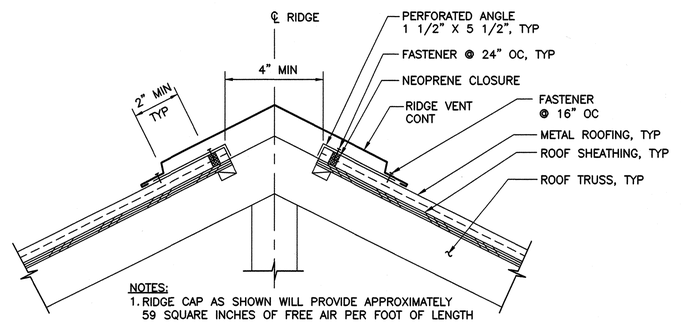
ROOM NAME	FLOOR		BASE		WALLS								CEILING	
					NORTH		SOUTH		EAST		WEST			
	MATL.	FINISH	MATL.	FINISH	MATL.	FINISH	MATL.	FINISH	MATL.	FINISH	MATL.	FINISH	MATL.	FINISH
PUMP ROOM	CONC.	PTS	N/A	–	CMU	PTS	CMU	PTS	CMU	PTS	CMU	PTS	MGP	PTS

CONC –CONCRETE
CMU –CONCRETE MASONRY UNIT
MGP –MARINE GRADE PLYWOOD
PTS –PAINT TO SPECIFICATIONS



(B / –) **TYPICAL BAFFLE DETAIL**

SCALE: 3/4"=1'-0"



NOTES:
1. RIDGE CAP AS SHOWN WILL PROVIDE APPROXIMATELY 59 SQUARE INCHES OF FREE AIR PER FOOT OF LENGTH
2. PERFORATED ANGLE TO HAVE AT LEAST 40% OPEN AREA

(C / –) **TYPICAL RIDGE VENT DETAIL**

NOT TO SCALE

0 1" 2"

TWO INCHES AT FULL SCALE. IF NOT, SCALE ACCORDINGLY

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No.	REVISION	DATE	APPD

CITY OF ISSAQUAH
KING COUNTY WASHINGTON

MOUNT HOOD BOOSTER STATION

BOOSTER STATION
FLOOR PLAN, SECTION, DETAILS, AND SCHEDULES

SHEET: S1-1
25 OF 45

JOB NO.: 14543
DWG: S1_BSTR B

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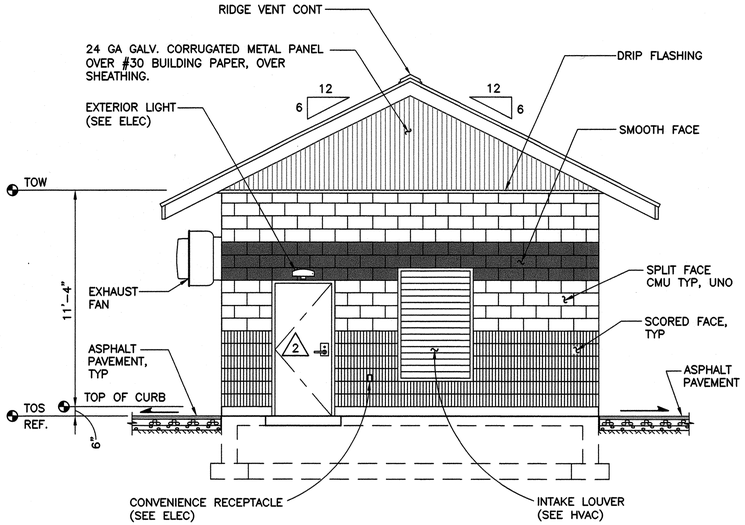
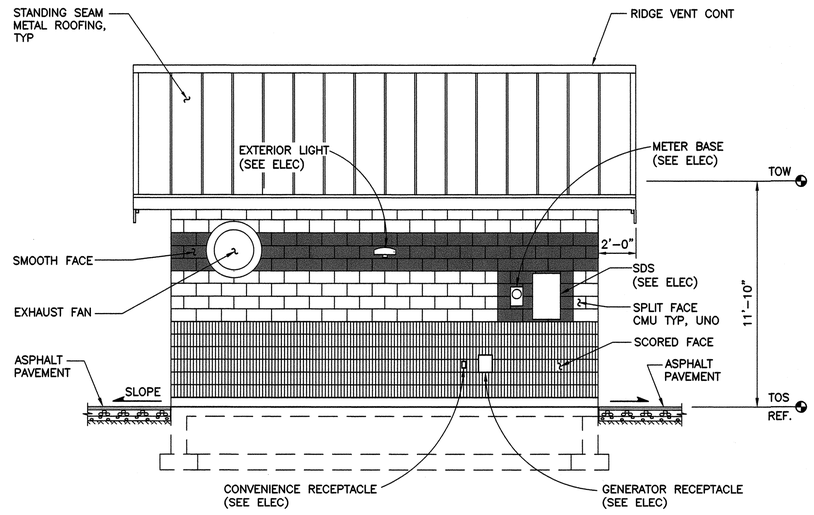


WEST ELEVATION

SCALE: 1/4"=1'-0"

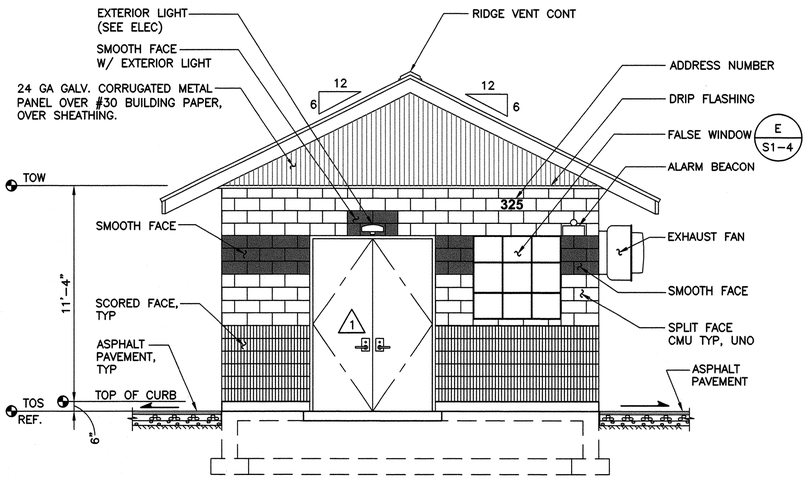


NORTH ELEVATION

SCALE: 1/4"=1'-0"

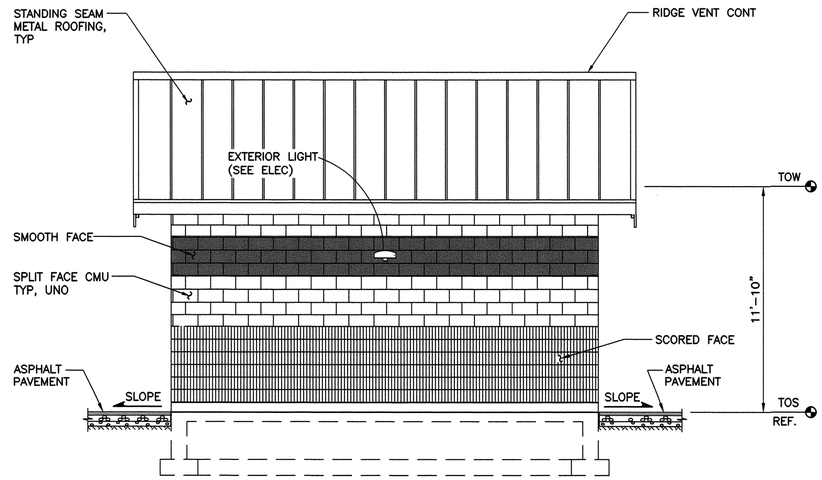
NOTES:

1. COAT CMU WITH ANTI-GRAFFITI COATING PER SPECIFICATIONS.
2. PROVIDE THE FOLLOWING COLORS OR EQUAL:
   CMU & MORTAR: DAVIS COLORS – MESA BUFF
   METAL ROOF & WALL PANELS: AEP SPAN – FOREST GREEN
   LOUVERS: GREENHECK – IVY



EAST ELEVATION

SCALE: 1/4"=1'-0"



SOUTH ELEVATION

SCALE: 1/4"=1'-0"

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0 1" 2"
TWO INCHES AT FULL SCALE.
IF NOT, SCALE ACCORDINGLY

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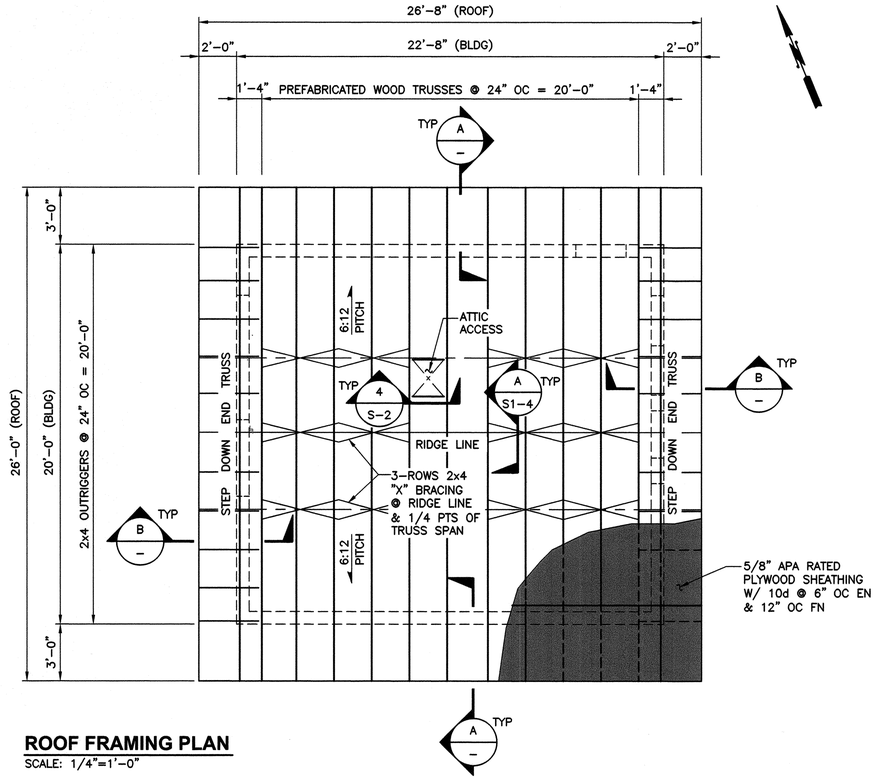
CITY OF ISSAQUAH
KING COUNTY WASHINGTON

MOUNT HOOD BOOSTER STATION

BOOSTER STATION ELEVATIONS

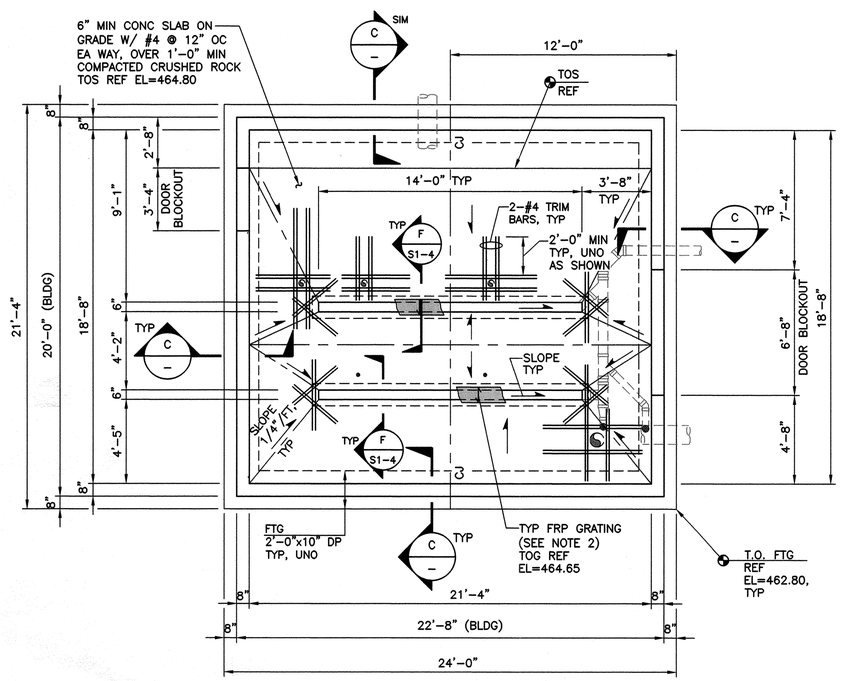
SHEET: S1-2
26 OF 45

JOB NO.: 14543
DWG: S1_BSTR B



ROOF FRAMING PLAN

SCALE: 1/4"=1'-0"



FOUNDATION PLAN

SCALE: 1/4"=1'-0"

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JBP

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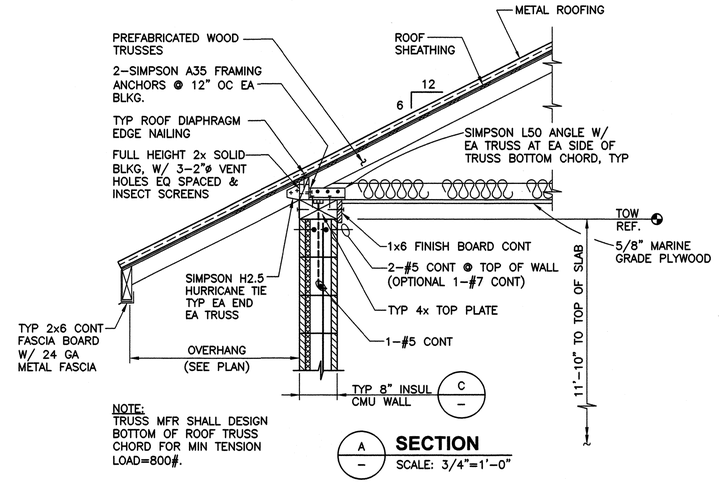
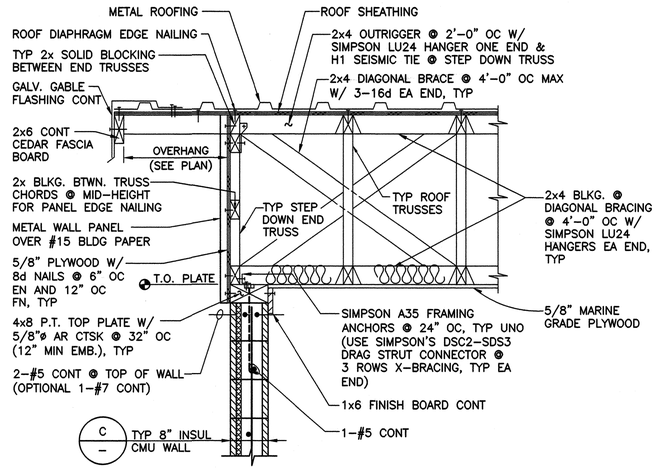
NOTES:

1. SEE SHEETS S-1 THROUGH S-3 FOR GENERAL STRUCTURAL NOTES AND TYPICAL DETAILS.
2. PROVIDE FIBERGLASS REINFORCED PLASTIC (FRP) 1"x1 1/2"x1 1/2" MOLDED GRATING. FRP GRATING SHALL BE MOLDED INDUSTRIAL FIBERGLASS REINFORCED PLASTICS, AS MANUFACTURED BY "FIBERGRATE COMPOSITE STRUCTURES, INC." OR EQUAL. GRATING BAR SIZES AND SPACING, OVERALL DIMENSIONS, CUTOUTS FOR OBSTRUCTIONS AND DIRECTION OF BEARING BARS AS INDICATED ON THE DRAWINGS. FABRICATE TO ALLOW FOR REMOVABLE SECTIONS WITH MAX. SECTION LENGTH 3'-0"
3. NOT ALL FOUNDATION AND WALL PENETRATIONS MAY BE SHOWN. COORDINATE SIZE AND LOCATIONS WITH MECHANICAL, PLUMBING, ELECTRICAL, AND HVAC DRAWINGS.



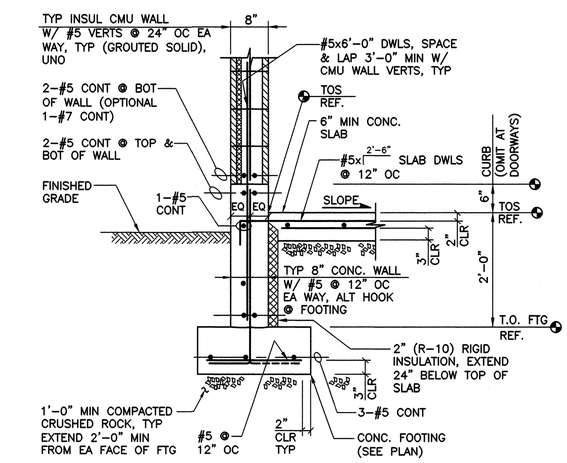
A — SECTION

SCALE: 3/4"=1'-0"



B — SECTION

SCALE: 3/4"=1'-0"



C — SECTION

SCALE: 3/4"=1'-0"

0 1" 2"

TWO INCHES AT FULL SCALE. IF NOT, SCALE ACCORDINGLY

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CITY OF ISSAQUAH
KING COUNTY WASHINGTON

MOUNT HOOD BOOSTER STATION

BOOSTER STATION
FOUNDATION AND ROOF FRAMING PLANS AND DETAILS

SHEET: S1-3
27 OF 45

JOB NO.: 14543
DWG: S1_BSTR B

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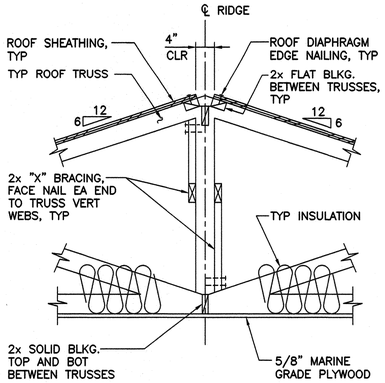
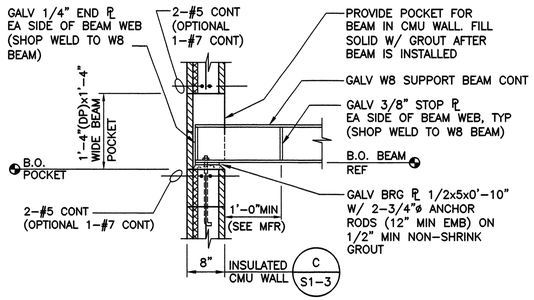
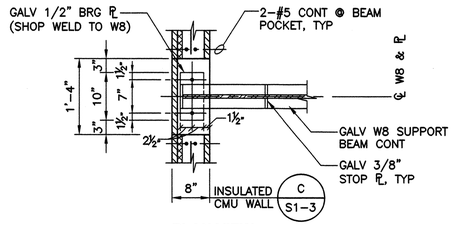


NOTE:
METAL ROOFING NOT SHOWN FOR CLARITY.

A / S1-3 **SECTION**
SCALE: 3/4"=1'-0"

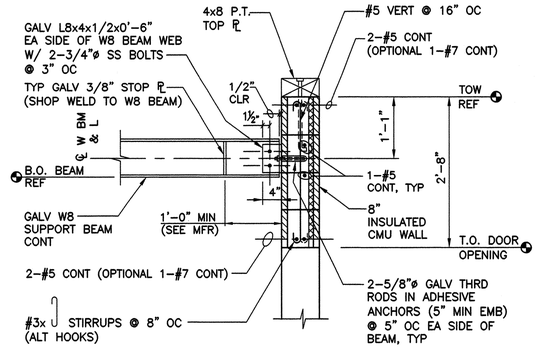


SECTION

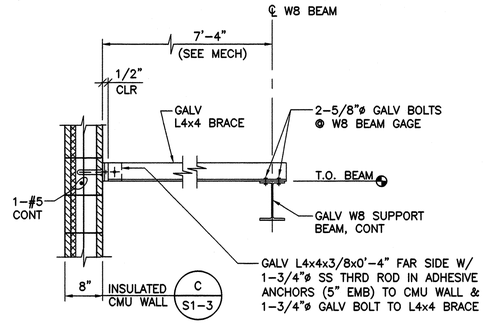


PLAN VIEW

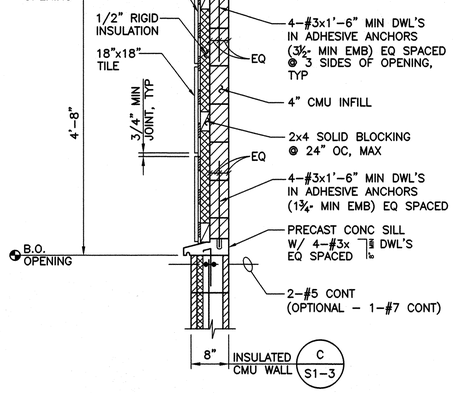
B / S1-1 **SECTION**
SCALE: 3/4"=1'-0"



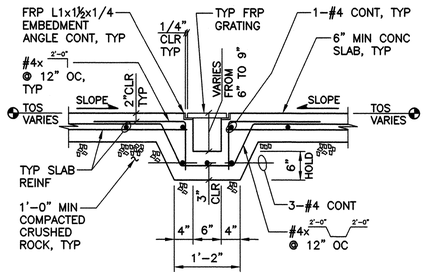
C / S1-1 **SECTION**
SCALE: 3/4"=1'-0"



D / S1-1 **SECTION**
SCALE: 3/4"=1'-0"



E / S1-1 **SECTION**
SCALE: 3/4"=1'-0"



F / S1-3 **SECTION**
SCALE: 3/4"=1'-0"

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CITY OF ISSAQUAH
WASHINGTON
KING COUNTY

MOUNT HOOD BOOSTER STATION

BOOSTER STATION DETAILS

SHEET: S1-4
28 OF 45

JOB NO.: 14543
DWG: S1_BSTR B

ABBREVIATIONS

A	AMPERE (AMP)
AC	ALTERNATING CURRENT
AF	BREAKER FRAME SIZE (IN AMPS)
AI	ANALOG INPUT
AL	ALUMINUM
AM	AMMETER
AO	ANALOG OUTPUT
AT	BREAKER TRIP (SETTING IN AMPS)
ATS	AUTOMATIC TRANSFER SWITCH
AWG	AMERICAN WIRE GAUGE
BATT	BATTERY
BKR	BREAKER
CP	CONTROL PANEL
CPT	CONTROL POWER TRANSFORMER
CST	CONTROL STATION
CT	CURRENT TRANSFORMER
CU	COPPER
DC	DIRECT CURRENT
DI	DISCRETE INPUT
DIST	DISTRIBUTION
DO	DISCRETE OUTPUT
DTWV	DISCHARGE-TO-WASTE VALVE
EIOM	EXTENDED I/O MODULE
ETC	ELAPSED TIME/COUNTER METER
ETM	ELAPSED TIME METER
ENCL	ENCLOSURE
EXIST	EXISTING
FDR	FEEDER
FLA	FULL LOAD AMPS
FU	FUSE
FVNR	FULL VOLTAGE NON REVERSING
FVR	FULL VOLTAGE REVERSING
FY	FLOW COMPUTATION
G	GROUND CONDUCTOR
GEC	GROUNDING ELECTRODE CONDUCTOR
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GND	GROUND
H	HORN
HA	HAND-AUTO
HOA	HAND-OFF-AUTO
HOR	HAND-OFF-REMOTE
HP	HORSEPOWER
IC	INTERRUPTING CAPACITY
JCXXX	JUNCTION BOX, CONTROL
JPXXX	JUNCTION BOX, POWER
JSXXX	JUNCTION BOX, SIGNAL
kA	KILOAMPERES
kAIC	KILOAMPERES-INTERRUPTING CAPACITY
KCM	THOUSAND CIRCULAR MILLS
kV	KILOVOLT
kVA	KILOVOLT-AMPERE
kVAh	KILOVOLT-AMPERE HOUR
kVAR	KILOVAR (REACTIVE KILOVOLT-AMPERE)
KVARh	KILOVAR-HOUR
kW	KILOWATT
kWh	KILOWATT-HOUR
LA	LIGHTNING ARRESTOR
LAN	LOCAL AREA NETWORK
LFMC	LIQUIDTIGHT FLEXIBLE METAL CONDUIT
LINE	POWER LINE/POWER BLOCK
LV	LOW VOLTAGE
M	MAGNETIC CONTACTOR
mA	MILLIAMPERES
MCC	MOTOR CONTROL CENTER
MCM	THOUSAND CIRCULAR MILLS
MCP	MOTOR CIRCUIT PROTECTOR
MOV	METAL OXIDE VARISTOR
MS	MOTOR STARTER
MSDS	MOTOR SAFETY DISCONNECT SWITCH
MTS	MANUAL TRANSFER SWITCH
MTU	MASTER TELEMETRY UNIT
mV	MILLIVOLT
MW	MEGAWATT
N	NEUTRAL CONDUCTOR
NEC	NATIONAL ELECTRICAL CODE
NEMA	NATIONAL ELECTRIC MANUFACTURERS ASSOC.
NESC	NATIONAL ELECTRICAL SAFETY CODE
NFPA	NATIONAL FIRE PROTECTION AGENCY
OCPD	OVERCURRENT PROTECTION DEVICE
OE	OVERHEAD ELECTRIC
OIU	OPERATOR INTERFACE UNIT
OL	OVERLOAD, THERMAL
OLR	OVERLOAD RELAY
P	POLE
PF	POWER FACTOR
PH	PHASE
PLC	PROGRAMMABLE LOGIC CONTROL
PMR	PHASE MONITOR RELAY
PMU	POWER MONITOR UNIT
POT	POTENTIOMETER
PVC	POLYVINYL CHLORIDE CONDUIT
RGS	RIGID GALVANIZED STEEL CONDUIT
RVSS	REDUCED-VOLTAGE SOFT START
RMC	RIGID METALLIC CONDUIT
RNC	RIGID NONMETALLIC CONDUIT
RTU	REMOTE TELEMETRY UNIT
s	SECOND
SHD	SHIELDED
SPD	SURGE PROTECTION DEVICE
SS	SELECTOR SWITCH
SUSE	SUITABLE FOR USE AS A SERVICE ENTRANCE
TB	TERMINAL BLOCK
TDAD	TIME DELAY AFTER DE-ENERGIZATION
TDAE	TIME DELAY AFTER ENERGIZATION
TQS	TORQUE SWITCH
TSP	TWISTED SHIELDED PAIR
TST	TWISTED SHIELDED TRIAD
T/M	THERMAL MAGNETIC
UPS	UNINTERRUPTIBLE POWER SUPPLY
V	VOLT
VA	VOLT-AMPERE
VFD	VARIABLE FREQUENCY DRIVE
VMR	VOLTAGE MONITORING RELAY
W	WATT
WAN	WIDE AREA NETWORK
Wh	WATT-HOUR
WP	WEATHER PROOF
XFMR	POWER TRANSFORMER

SYMBOL LEGEND

PLAN SYMBOLS

- CONDUIT DOWN
- CONDUIT UP
- CONDUIT STUB UP/END CAP
- DISCONNECT SWITCH
- FUSED DISCONNECT SWITCH
- COMMUNICATION OUTLET
- TELEPHONE OUTLET
- SPECIAL OUTLET
- DUPLEX RECEPTACLE
- DUPLEX RECEPTACLE (BELOW COUNTER/HIDDEN)
- QUAD RECEPTACLE
- QUAD RECEPTACLE (BELOW COUNTER/HIDDEN)
- FLOOR MOUNTED RECEPTACLE
- LIGHT POLE, SINGLE FIXTURE
- LIGHT POLE, DUAL FIXTURE
- #12 AWG GROUND CONDUCTOR
- #12 AWG NEUTRAL CONDUCTOR
- #12 AWG BRANCH CONDUCTOR

CROSSMARKS INDICATE QUANTITY AND USE OF CONDUCTORS

- S_x SWITCH, X = 3 = 3-WAY, 4 = 4-WAY, K = KEY, M = MOTION
- SEAL OFF
- MOTOR X = HORSE POWER
- (XX) XX=

CV	CHECK VALVE
FE	FLOW ELEMENT
FI	FLOW INDICATOR
FIT	FLOW INDICATOR/TRANSMITTER
FS	FLOW SWITCH
FT	FLOW TRANSMITTER
HD	HEAT DETECTOR
IS	INTRUSION SWITCH
J	JUNCTION BOX
L	LIMIT SWITCH
LE	LEVEL ELEMENT
LI	LEVEL INDICATOR
LIT	LEVEL INDICATOR/TRANSMITTER
LS	LEVEL SWITCH/FLOAT
LT	LEVEL TRANSDUCER
MFM	MAGNETIC FLOW METER
PC	PHOTO CELL
PE	PRESSURE ELEMENT
PI	PRESSURE INDICATOR
PIT	PRESSURE INDICATOR TRANSMITTER
PS	PRESSURE SWITCH
PT	PRESSURE TRANSMITTER
SD	SMOKE DETECTOR
SV	SOLENOID VALVE
T	THERMOSTAT

ELEMENTARY WIRING DIAGRAM SYMBOLS

- NC CONTACT
- NC CONTACTOR
- NO CONTACT
- NO CONTACTOR
- SS SOLID STATE CONTACTOR
- (ALT) ALTERNATING RELAY
- (CR) CONTROL RELAY
- (C)SS SOLID STATE CONTACT RELAY
- (C) CONTACTOR
- (M) MOTOR RELAY
- (TR) TIME DELAY RELAY
- LIGHT EMITTING DIODE
- DIODE
- (X) INDICATING LIGHT: A = AMBER, B = BLUE, G = GREEN, R = RED, W = WHITE
- "PUSH TO TEST" LIGHT
- HAND OFF AUTO XOO / OXO / OOX OR HAND OFF AUTO XOO / OOX — HOA SWITCH
- A B XO / OX OR A B XO — 2-POSITION SELECTOR SWITCH
- GFCI DUPLEX OUTLET
- DUPLEX OUTLET
- FUSE
- FUSE W/ LED
- WIRE CONNECTION
- 8888 DIGITAL READOUT
- RESISTOR
- POTENTIOMETER
- SOLENOID VALVE COIL
- TRANSFORMER WINDING/ REACTOR/CHOKE
- TERMINAL POINT
- SPST SWITCH
- MOUNTED ON OUTER DOOR
- MOUNTED ON INNER DOOR
- LOCKABLE DEVICE
- N.C. TEMPERATURE SWITCH
- N.O. TEMPERATURE SWITCH
- N.O. PUSHBUTTON
- N.C. PUSHBUTTON
- N.O. MUSHROOM PUSHBUTTON
- N.C. MUSHROOM PUSHBUTTON
- N.O. PRESSURE SWITCH
- N.C. PRESSURE SWITCH
- N.C. LIMIT SWITCH
- N.O. LIMIT SWITCH
- N.C. FLOW SWITCH
- N.O. FLOW SWITCH
- N.O. FLOAT SWITCH
- N.C. FLOAT SWITCH
- N.C. DIFFERENTIAL PRESSURE SWITCH
- N.O. DIFFERENTIAL PRESSURE SWITCH
- TDAE, N.O., TIME DELAY CLOSE, INSTANTANEOUS RE-OPEN
- TDAD, N.O., INSTANTANEOUS CLOSE, TIME DELAY RE-OPEN
- TDAE, N.C., TIME DELAY OPEN, INSTANTANEOUS RE-CLOSE
- TDAD, N.C., INSTANTANEOUS OPEN, TIME DELAY RE-CLOSE
- GROUND EQUIPMENT/CHASSIS
- GROUND, ISOLATED

ONE LINE SYMBOLS

- CAPACITOR
- M CIRCUIT BREAKER, MAGNETIC ONLY
- T/M CIRCUIT BREAKER, THERMAL-MAGNETIC
- CIRCUIT CONNECTION
- CONTACTOR
- CURRENT TRANSFORMER
- FUSE
- FUSIBLE DISCONNECT
- GROUND EQUIPMENT/CHASSIS
- (G) GENERATOR
- S/N SOLID NEUTRAL
- ANALOG AMMETER
- REACTOR/CHOKE
- THERMAL OVERLOAD RELAY

GENERAL SYMBOLS

- ⟨XX⟩ CONDUIT
- [XX XXX XX] TAG LABEL
- *XX:XX:XX PLC ADDRESSING
- GFCI GFCI PANELBOARD CIRCUIT
- X AREA ID TAG
- DEMOLITION (DEMO)
- INTRINSICALLY SAFE AREA
- CLEARANCE AREA

LINETYPES

- EXPOSED CONDUIT
- UNDERGROUND (BURIED) CONDUIT
- GROUNDING ELECTRODE CONDUCTORS
- EMBEDDED CONDUIT (WALLS, CONCRETE, ETC.)

NOTE:
THIS IS A GENERAL LEDGER SHEET. ALL SYMBOLS MAY NOT APPLY.

GENERAL ELECTRICAL NOTES:

SITE AND BUILDING PLANS:

1. CONDUIT ROUTING IS SHOWN FOR CLARITY. ACTUAL ROUTING MAY BE MORE DIRECT AND IS LEFT TO THE CONTRACTOR FOLLOWING SPECIFICATIONS 16130. NON-ELECTRICAL BURIED PIPING HAS ROUTING PRIORITY OVER ELECTRICAL BURIALS.
2. ALL TRENCHING SHALL BE PER (1 / ED-1).
3. THE CONTRACTOR SHALL TAKE ALL STEPS NECESSARY TO PROTECT EXISTING UTILITIES.
4. THROUGHOUT THIS DOCUMENT, THE TERM "DEMO" MEANS TO DEMOLISH, THEN WASTEHAUL OR RETURN TO THE OWNER, PER THE OWNER'S DIRECTION.

GENERAL CONTROL PANEL NOTES:

1. UNLESS SPECIFICALLY NOTED OTHERWISE ON THE CONTROL PANEL DETAILS, THE FOLLOWING NOTES APPLY.
   - 1.1 ALL ENCLOSURES SHALL BE PROVIDED WITH AN ENGRAVED NAMEPLATE CORRESPONDING TO THE ASSOCIATED TAG ID NUMBER AND TAG DESCRIPTION.

     TAG DESCRIPTION
     "[" TAG NUMBER "]"

   - 1.2 WHERE PANELS CONTAIN POWER FROM MULTIPLE SOURCES, PROVIDE A YELLOW SAFETY STICKER, APPROXIMATELY 2" x 3", AS SHOWN BELOW.

     CAUTION

     THIS DEVICE IS POWERED FROM SEVERAL SOURCES

     THE DISCONNECT SWITCH WILL NOT SHUT OFF ALL SOURCES OF ELECTRICAL ENERGY

OUTDOOR INSTALLATIONS:

1. ALL MOUNTING HARDWARE SHALL BE 316L STAINLESS STEEL.
2. ALL EXPOSED PORTIONS OF CONDUITS SHALL BE PVC-COATED RGS UNLESS SPECIFICALLY NOTED OTHERWISE.
3. ALL CONNECTIONS INTO ENCLOSURES SHALL BE WATERTIGHT, MADE INTO THE BOTTOM OF THE PANELS, USING MYER-TYPE HUBS.
4. PANELS MOUNTED ON EXTERIOR WALLS SHALL BE SUPPORTED TO THE WALL WITH 1/2-INCH (MINIMUM) 316L STAINLESS STEEL UNISTRUT.

INDOOR INSTALLATIONS:

1. ALL EXPOSED PORTIONS OF CONDUITS SHALL BE RGS.
2. EXCEPT FOR INSTRUMENTATION, NON LINEAR CIRCUITS, AND INTRINSICALLY SAFE CIRCUITS ALL PORTIONS OF CONDUITS IN THE ATTIC SHALL BE EMT.
3. PANELS MOUNTED ON INTERIOR WALLS SHALL BE SUPPORTED TO THE WALL WITH 1/2-INCH (MINIMUM) GALVANIZED UNISTRUT.

CABLE AND CONDUIT NOTES:

1. REFERENCE SPECIFICATION 16120 FOR CONDUCTORS, INSTRUMENTATION, COMMUNICATION, AND OTHER SPECIAL CABLES AND CONDUCTORS.
2. REFERENCE SPECIFICATION 16130 FOR RACEWAY AND BOXES, JUNCTION BOX TYPES, AND HANDHOLE, PULLBOX, AND VAULT CONDUIT INSTALLATIONS.
3. REFERENCE SPECIFICATIONS AND OUTDOOR INSTALLATION NOTES FOR CONDUIT COMPOSITION AND COATING.
4. CONDUIT TAGS ON PLAN SHEETS WITH A "~" (TILDE) SUFFIX REFER TO SPARE CONDUITS.

   EXAMPLE: ⟨P0319~⟩
5. CABLE AND CONDUIT SCHEDULES:
   - 7.1 THE CABLE AND CONDUIT SCHEDULE PROVIDES CONDUIT NUMBER, SOURCE, DESTINATION, AND SIZE AS WELL AS CONDUCTOR AND CABLE REQUIREMENTS. REFERENCE SPECIFICATION 16130 FOR CONDUIT COMPOSITION AND COATING.
   - 7.2 CONDUITS MARKED WITH "* n" (WHERE n = 1, 2, OR 3) SHALL BE 100% CONTINUOUS PER SPECIFICATION 16130.

     SPECIFICALLY, CONDUITS MARKED WITH:

     "* 1" DENOTE NON LINEAR POWER CIRCUITS.

     "* 2" DENOTE INTRINSICALLY SAFE CIRCUITS, EITHER CONTROL OR INSTRUMENTATION.

     "* 3" DENOTE INSTRUMENTATION CIRCUITS THAT ARE NOT INTRINSICALLY SAFE. IF THESE CONDUITS ENTER A PULLBOX, THEN THEY MUST CONNECT TO A "TYPE 3" J-BOX INSIDE THE PULLBOX.

READING DOCUMENTS:

ELEMENTARY DIAGRAMS:

1. ELEMENTARY DIAGRAMS ARE SHOWN IN LADDER LOGIC FORM WITH LINE NUMBERS FORMATTED AS:

   SS.LL WHERE SS = SHEET NUMBER AND
   LL = LINE NUMBER
2. RELAY COIL "TYPES" ARE INDICATED INSIDE THE COIL SYMBOL AS PER THE SYMBOL SCHEDULE ON THIS SHEET. THE COIL NUMBER IS OF THE FORMAT:

   TTSS.LL.AA WHERE TT = RELAY TYPE (PER SYMBOL SCHEDULE)
   SS.LL = AS DESCRIBED ABOVE
   AA = ASSOCIATION WITH A DRIVE, CONTROLLER, CONTROL PANEL, ETC.
3. RELAY CONTACTS ARE NUMBERED IN ASSOCIATION WITH THEIR COILS FOLLOWED BY "-X" WHERE X IS THE CONTACT POLE NUMBER.

   EXAMPLE: RELAY CONTACTS FOR A DPDT RELAY

CONTACT NUMBER	N.O. CONTACT REFERENCE	N.C. CONTACT REFERENCE
1:	12.40	NA\
2:	13.04	13.05\

   (13.04: SHEET NUMBER . LINE NUMBER)

   N.O. = NORMALLY OPEN CONTACT
   N.C. = NORMALLY CLOSED CONTACT.
4. CONTACTS AND ANALOG SIGNALS CONNECTED TO PLC I/O ARE FORMATTED AS:

   *RR.SS.CC WHERE * DENOTES A PLC I/O CONNECTION
   RR = PLC RACK NUMBER
   SS = RACK SLOT NUMBER
   CC = SLOT CHANNEL NUMBER

PANELBOARD CIRCUIT ASSIGNMENTS:

1. LIGHTING FIXTURES AND RECEPTACLES ARE SHOWN WITH THEIR PANELBOARD CIRCUIT BREAKER NUMBER FOLLOWING THE FORMAT BELOW:

   CKT PB-CB1, CB2, CB3 WHERE PB = PANELBOARD TAG NAME
   CB1= 1ST CIRCUIT BREAKER NUMBER
   CB2= 2ND CIRCUIT BREAKER NUMBER (IF 2 OR 3 POLE)
   CB3= 3RD CIRCUIT BREAKER NUMBER (IF 3 POLE)

   EXAMPLE: 01-06 IN AREA 03 REPRESENTS THE CIRCUIT BREAKER IN POSITION 6 IN THE PANELBOARD [03 PB 01].

PLCS:

1. REFERENCE CONTROL PANEL SPECIFICATION 13430.
2. WIRE ALL PLC ANALOG AND DIGITAL INPUTS AND OUTPUTS, WHETHER ASSIGNED OR SPARE, TO TERMINAL GROUPS PER SPECIFICATION.
3. ALL PLC DIGITAL OUTPUTS SHALL BE BUFFERED THROUGH INTERPOSING RELAYS. SPARE OUTPUTS AND OUTPUTS ASSIGNED OUTSIDE THE PANEL SHALL BE CONNECTED TO A FUSED TERMINAL PAIR.
4. N.O. OR N.C. CONTACTS FORMATTED AS *RR:SS:CC ARE DERIVED FROM PLC DIGITAL OUTPUT BUFFER RELAYS. THE RELAY CONTACT INDICATOR *RR:SS:CC INDICATES THE RELAY'S ASSOCIATED PLC DIGITAL OUTPUT RACK, SLOT, AND CHANNEL.

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JOHN P. GALLUCCI — STATE OF WASHINGTON — 40552 — REGISTERED PROFESSIONAL ENGINEER — 4/22/15

CITY OF ISSAQUAH
KING COUNTY WASHINGTON
MOUNT HOOD BOOSTER STATION
ELECTRICAL SYMBOLS, ABBREVIATIONS, AND NOTES

SHEET: **E-1**
29 OF **45**
JOB NO.: 14543
DWG: E_SYM_ABBR

SHEET LIST

SHEET NO.	SHEET ID	SHEET DESCRIPTION
29	E–1	ELECTRICAL SYMBOLS, ABBREVIATIONS, AND NOTES
30	E–2	SHEET LIST, DEVICE TAG LIST, UTILITY REFERENCES AND LIGHTING SCHEDULE
31	E–3	SITE ELECTRICAL PLAN
32	E–4	ONE LINE DIAGRAM
33	E–5	GROUNDING ONE LINE DIAGRAM
34	E–6	BOOSTER STATION BUILDING POWER, CONTROL, AND INSTRUMENTATION PLAN
35	E–7	BOOSTER STATION BUILDING LIGHTING AND RECEPTACLE PLAN
36	E–8	BOOSTER STATION BUILDING HVAC, FIRE, AND SECURITY PLAN
37	E–9	PANELBOARD [01 PB 01] SCHEDULE
38	E–10	[01 MCC 01] ELEVATION, SPECIFICATIONS, AND SCHEDULE
39	E–11	MOTOR STARTER NOTES AND DETAIL
40	E–12	MOTOR STARTER ELEMENTARY WIRING DIAGRAM
41	E–13	EXTERIOR LIGHTING CONTROL PANEL [01 CP 02] CONNECTION DIAGRAM AND DETAILS
42	E–14	[01 PLC 01] EXTENDED PLC I/O TABLES
43	EC–1	CABLE AND CONDUIT SCHEDULES
44	ED–1	ELECTRICAL DETAILS
45	ED–2	ELECTRICAL DETAILS

DEVICE TAG LIST

TAG ID#	TAG DESCRIPTION	VINTAGE
01 AB 01	ALARM BEACON	NEW
01 BLDG 01	BOOSTER STATION BUILDING	NEW
01 CAM 01	CAMERA NO. 1, ON [01 PPLT 01]	NEW
01 CAM 02	CAMERA NO. 2, ON [01 PPLT 01]	NEW
01 CAM 03	CAMERA NO. 3, ON [01 PPLT 02]	NEW
01 CLA 01	CHLORINE ANALYZER	FUTURE
01 CP 01	CONTROL PANEL, PLC	NEW
01 CP 02	CONTROL PANEL, EXTERIOR LIGHTING	NEW
01 CREC 01	CONVENIENCE RECEPTACLE EXTERIOR, NORTH	NEW
01 CREC 02	CONVENIENCE RECEPTACLE EXTERIOR, WEST	NEW
01 DH 01	DEHUMIDIFIER	NEW
01 DREC 01	DEDICATED RECEPTACLE, SECURITY RACK	NEW
01 DREC 02	DEDICATED RECEPTACLE, DEHUMIDIFIER	NEW
01 EF 01	EXHAUST FAN	NEW
01 FIT 01	FLOW INDICATOR/TRANSMITTER, DISCHARGE	NEW
01 FIT 02	FLOW INDICATOR/TRANSMITTER, BYPASS	NEW
01 FLD 01	FLOOD SWITCH, BOOSTER STATION	NEW
01 FLD 02	FLOOD SWITCH, VALVE VAULT	FUTURE
01 FM 01	FLOW METER, DISCHARGE	NEW
01 FM 02	FLOW METER, BYPASS	NEW
01 GREC 01	GENERATOR RECEPTACLE, 200 A, 480 VAC, 3 PH	NEW
01 HH 01	HANDHOLE, LIGHTING	NEW
01 HH 02	HANDHOLE, LIGHTING	NEW
01 HT 01	UNIT HEATER	NEW
01 IS 01	INTRUSION SWITCH, WEST MANDOOR	NEW
01 IS 02	INTRUSION SWITCH, EAST DOUBLE–DOOR	NEW
01 IS 03	INTRUSION SWITCH, RESERVOIR, ROOF HATCH	EXISTING
01 IS 04	INTRUSION SWITCH, RESERVOIR, LADDER	FUTURE
01 IS 05	INTRUSION SWITCH, VALVE VAULT	FUTURE
01 IS 06	INTRUSION SWITCH, DECHLORINATION ???	FUTURE
01 LS 01	LIMIT SWITCH, BYPASS VALVE PRESSURE RELEASE	NEW
01 LT 01	LEVEL TRANSDUCER, TANK LEVEL	EXISTING
01 MB 01	UTILITY METER BASE	NEW
01 MCB 01A	MCC BREAKER, UTILITY SERVICE, KIRK–KEY	NEW
01 MCB 01B	MCC BREAKER, GENERATOR, KIRK–KEY	NEW

DEVICE TAG LIST

TAG ID#	TAG DESCRIPTION	VINTAGE
01 MCB 02	MCC BREAKER, FOR [01 XFMR 01]	NEW
01 MCB 03	MCC BREAKER, FOR [01 HT 01]	NEW
01 MCB 04	MCC BREAKER, SPARE	NEW
01 MCB 05	MCC BREAKER, SPARE	NEW
01 MCC 01	MOTOR CONTROL CENTER	NEW
01 MD 01	MOTORIZED DAMPER	NEW
01 MS 01	MOTOR STARTER, PUMP NO. 1 MOTOR	NEW
01 MS 02	MOTOR STARTER, PUMP NO. 2 MOTOR	NEW
01 MTR 01	MOTOR, PUMP NO. 1	NEW
01 MTR 02	MOTOR, PUMP NO. 2	NEW
01 OFS 01	OVERFLOW FLOAT SWITCH, RESERVOIR	EXISTING
01 PB 01	PANELBOARD, 208/120 VAC, 3 PH	NEW
01 PBX 01	PULLBOX	NEW
01 PC 01	PHOTCELL FOR LIGHTING PANEL [01 CP 02]	NEW
01 PMU 01	POWER MONITOR UNIT	NEW
01 PPLT 01	POLE LIGHT, NORTH	NEW
01 PPLT 02	POLE LIGHT, SOUTHEAST	NEW
01 PT 01	PRESSURE TRANSDUCER, SUCTION	NEW
01 PT 02	PRESSURE TRANSDUCER, DISTRIBUTION	NEW
01 SD 01	SMOKE DETECTOR	NEW
01 SDS 01	SAFETY DISCONNECT SWITCH, UTILITY SERVICE	NEW
01 SDS 02	SAFETY DISCONNECT SWITCH, UNIT HEATER	NEW
01 SDS 03	SAFETY DISCONNECT SWITCH, MOTORIZED DAMPER	NEW
01 SDS 04	SAFETY DISCONNECT SWITH, EXHAUST FAN	NEW
01 SEC 01	SECURITY RACK	NEW
01 SPD 01	SURGE PROTECTIVE DEVICE	NEW
01 SPDC 01	SURGE PROTECTIVE DEVICE	NEW
01 T 01	THERMOSTAT, EXHAUST FAN	NEW
01 T 02	THERMOSTAT, UNIT HEATER	NEW
01 TP 01	TELEPHONE PEDESTAL	EXISTING
01 UP 01	UTILITY POLE	EXISTING
01 UT 01	UTILITY TRANSFORMER	NEW
01 VFD 01	VFD STARTER MODULE, PUMP NO. 1 MOTOR	NEW
01 VFD 02	VFD STARTER MODULE, PUMP NO. 2 MOTOR	NEW
01 XFMR 01	TRANSFORMER, 30 KVA, 208/120 VAC, 3 PH	NEW

UTILITIES AND OTHER KEY REFERENCES *

SERVICE	REFERENCE AS	COMPANY	PRIMARY REFERENCE	
			NAME	NUMBER
ELECTRICAL POWER UTILITY	PSE	POTELCO, INC.	DANIEL GAKIN	(253) 720–4717
TELEPHONE UTILITY	PHONE COMPANY	CENTURYLINK	VICKI HYETT	(206) 224–1047
SYSTEM INTEGRATOR	SYSTEM INTEGRATOR	S & B, INC.	JIM SWANSON	(425) 644–1700

* AS REFERENCED THROUGHOUT THESE PLANS.

LIGHTING SCHEDULE

MNUEMONIC	TECHNOLOGY	APPLICATION	EM *	DESCRIPTION	MANUFACTURER		INPUT (VA)	VOLTAGE	COMMENTS
					NAME	SERIES NO.			
L1	LED	INTERIOR BUILDING LIGHTING	NO	8" X 48", RECTANGULAR.	HOLOPHANE	EMS4 LED 4L	61	120 VAC, 1 PH	4728 LUMENS, ACRYLIC, LINEAL–RIBBED FROSTED LENS, SPREAD DISTRIBUTION.
L2	LED	EMERGENCY LIGHTING, INTERIOR	YES	DUAL FLOOD LIGHTS, WITH BATTERY BACKUP.	HOLOPHANE	CZ11 LED	3	120 VAC, 1 PH	WALL MOUNT, WHITE HOUSING.
L3	LED	EXTERIOR BUILDING LIGHTING	NO	EXTERIOR BUILDING LIGHT.	LITHONIA	DSXW1 LED	40	120 VAC, 1 PH	4000 K, 10 LEDS (ONE ENGINE), 1000 MA DRIVE CURRENT, VANDAL GUARD. 13–3/4" W X 10" D X 6–3/8" H.
L4	LED	POLE LIGHT	NO	HIGH OUTPUT, RECTANGULAR, WEATHERPROOF DOWN LIGHT.	RAB LIGHTING	ALED4T78	79	120 VAC, 1 PH	4728 LUMENS, 5100 K, HIGH OUTPUT, THREE DRIVER, CLASS 2, 47 LUMENS/WATT. PROVIDE WITH LIGHTING ADAPTOR RPA4 FOR ROUND POLE MOUNTING.
P1	---	LIGHT POLE	---	ALUMINUM, SQUARE, STRAIGHT.	LITHONIA	SSA	---	---	20' MOUNTING HEIGHT, 4 " BASE, NOT HINGED, ANODIZED.

* EM = EMERGENCY

ELECTRICAL WORK SUMMARY:

THIS SUMMARY OF ELECTRICAL WORK IS INCLUDED AS A COURTESY AND IS INTENDED TO PROVIDE A GENERAL UNDERSTANDING OF ELECTRICAL DESIGN INTENT AND MAJOR ELECTRICAL CONSTRUCTION TASKS. IT IS NOT PROVIDED AS A COMPLETE LIST OF WORK AND SHALL NOT BE USED FOR BIDDING PURPOSES. REFER TO ALL PLANS AND SPECIFICATIONS.

1. THE EXISTING BOOSTER STATION BUILDING WILL BE DEMOLISHED AND A NEW BOOSTER STATION BUILDING WILL BE ERECTED IN THE SAME GENERAL LOCATION. THE EXISTING BOOSTER STATION MUST REMAIN OPERABLE THROUGH CONSTRUCTION. COORDINATE TEMPORARY POWER AND POWER TRANSITION WITH THE ELECTRICAL POWER UTILITY.
2. A NEW MCC WITH TWO VFD MOTOR STARTERS WILL BE PROVIDED AT THE BOOSTER STATION TO OPERATE TWO 40HP PUMPS.
3. NEW SECURITY CAMERAS AND POLE LIGHTS WILL BE PROVIDED AT THE SITE.
4. EXISTING ELECTRICAL DEVICES AT THE RESERVOIR WILL BE REUSED. REFERENCE SHEET E–3.

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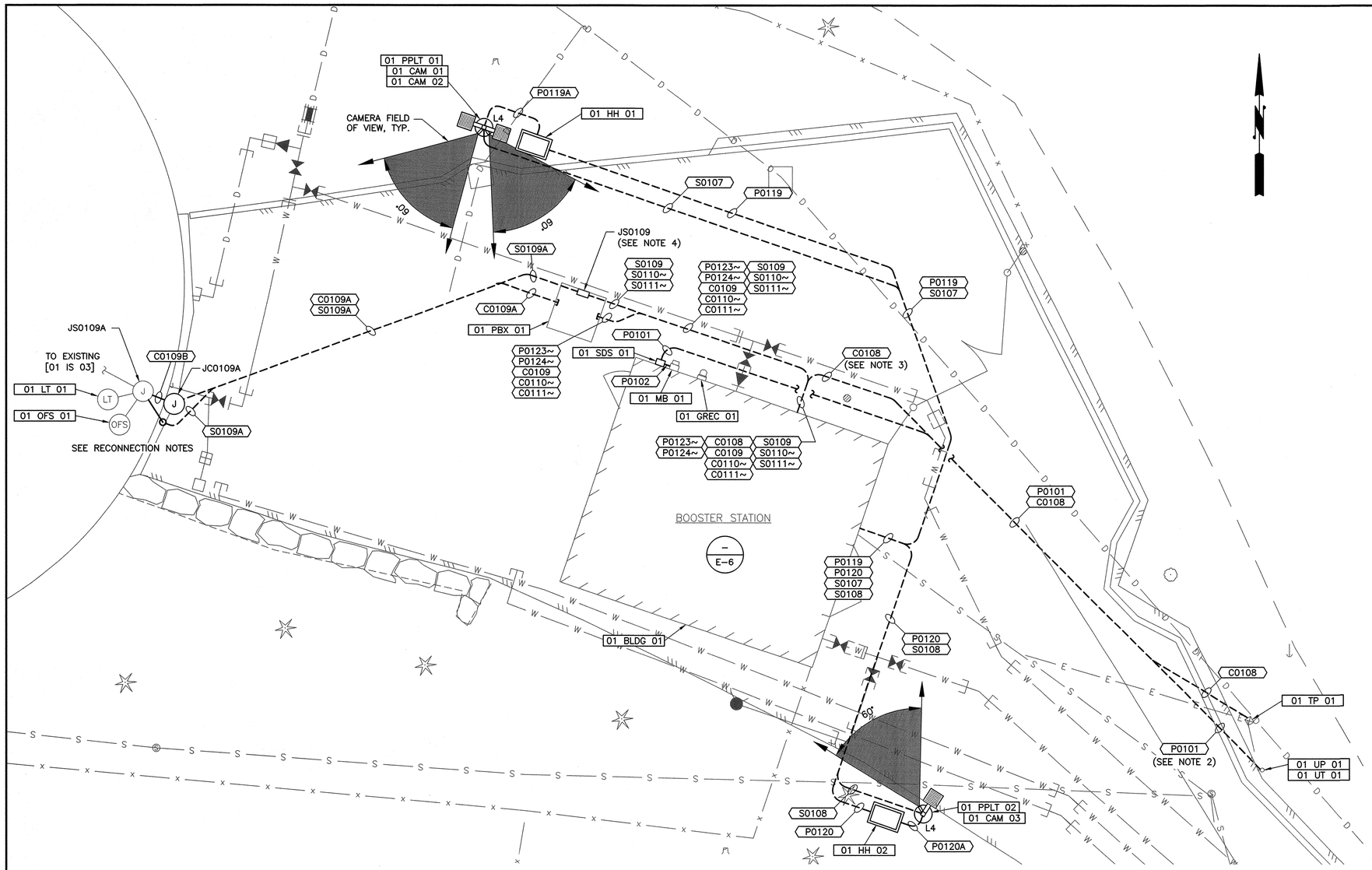
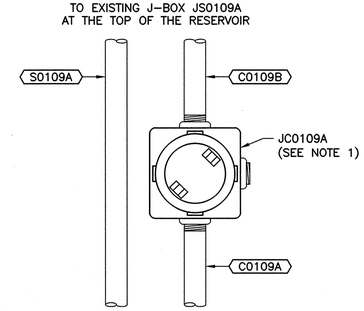
JOHN P. GALLUCCI — STATE OF WASHINGTON — 40550 — REGISTERED PROFESSIONAL ENGINEER — 4/22/15

CITY OF ISSAQUAH
KING COUNTY WASHINGTON
MOUNT HOOD BOOSTER STATION
SHEET LIST, DEVICE TAG LIST, UTILITY REFERENCES AND LIGHTING SCHEDULE

SHEET: E-2
30 OF 45
JOB NO.: 14543
DWG: E_SYM_ABBR





NOTES:

1. J-BOX JC0109A SHALL BE CROUSE HINDS EXPLOSION-PROOF, 3/4", 3-HUB CONDUIT OUTLET BOX #EABT26 OR EQUAL.
2. POSITION J-BOX JC0109A NEAR THE LOCATION OF FUTURE LADDER GUARD INTRUSION SWITCH [01 IS 04]. COORDINATE WITH THE OWNER.
3. COIL 12 INCHES OF 2X #14 AWG WIRES FOR FUTURE CONNECTION TO [01 IS 04].

A — **J-BOX JC0109A DETAIL**
NOT TO SCALE

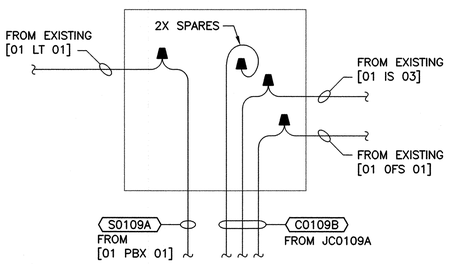
RECONNECTION NOTES:

1. THE TRANSFER OF THE LEVEL CONTROL SIGNAL MUST BE CAREFULLY COORDINATED WITH THE TRANSFER OF PROCESS CONTROL FROM THE OLD SYSTEM TO THE NEW.
2. LABEL THE EXISTING J-BOX AT THE TOP OF THE RESERVOIR "JS0109A".
3. DISCONNECT THE EXISTING LEVEL TRANSDUCER, OVERFLOW FLOAT SWITCH, AND RESERVOIR ROOF HATCH INTRUSION SWITCH [01 IS 03] (NOT SHOWN) MANUFACTURER'S CABLES INSIDE JS0109A.
4. REMOVE THE EXISTING PVC CONDUIT AND CABLES/CONDUCTORS FROM JS0109A TO THE OLD CONTROL BUILDING.
5. PROVIDE TWO NEW CONDUITS S0109A AND C0109B TO J-BOX JS0109A PER THE CABLE AND CONDUIT SCHEDULE. DO NOT SPLICE THE LEVEL TRANSDUCER CABLE IN JS0109 INSIDE THE PULLBOX.
6. PROVIDE EXPLOSION-PROOF CAST IRON J-BOX JC0109A ON THE VERTICAL RUN OF C0109A. COIL 2X #14 AWG WIRES INSIDE.
7. COIL 12" OF SPARE #14 AWG WIRE IN JS0109A AT THE TOP OF THE TANK.
8. SPLICE THE LEVEL TRANSDUCER MANUFACTURER'S CABLE TO THE NEW SIGNAL CABLE FROM S0109A USING 3M SUBMERSIBLE SPLICE KITS. PROVIDE SUFFICIENT CABLE TO ALLOW FUTURE CUTS/SPLICES.
9. SPLICE THE OVERFLOW FLOAT SWITCH AND [01 IS 03] MANUFACTURER'S CABLE TO THE NEW WIRES IN C0109B USING 3M SUBMERSIBLE SPLICE KITS. PROVIDE SUFFICIENT CABLE TO ALLOW FUTURE CUTS/SPLICES. TERMINATE BOTH S0109A AND C0109B IN JS0109A. REPLACE JS0109A IF REQUIRED TO MAKE THIS CHANGE.

NOTES:

1. REFERENCE NOTES ON SHEET E-1.
2. REFERENCE WSDOT SPECIFICATION SECTION 8-20.1 FOR SCOPE OF WORK AND COORDINATION WITH THE ELECTRICAL UTILITY.
3. COORDINATE PHONE SERVICE WITH THE TELEPHONE COMPANY. THE TELEPHONE CIRCUIT IDENTIFICATION IS

   325 MT. HOOD DR. SW
   CIRCUIT ID: 4.UCXX.11603..PN
4. ONLY TERMINATE "S" CONDUITS IN JS0109 IN [01 PBX 01].



B — **J-BOX JS0109A CONNECTION DIAGRAM**
NOT TO SCALE

SITE ELECTRICAL PAN
SCALE: 1"=5'

0 1" 2"
TWO INCHES AT FULL SCALE.
IF NOT, SCALE ACCORDINGLY

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JOHN P. GALLUCCI — STATE OF WASHINGTON — 40362 — REGISTERED PROFESSIONAL ENGINEER — 4/22/15

CITY OF ISSAQUAH
KING COUNTY WASHINGTON
MOUNT HOOD BOOSTER STATION
SITE ELECTRICAL PLAN

SHEET: E-3
31 OF 45
JOB NO.: 14543
DWG: E_SP

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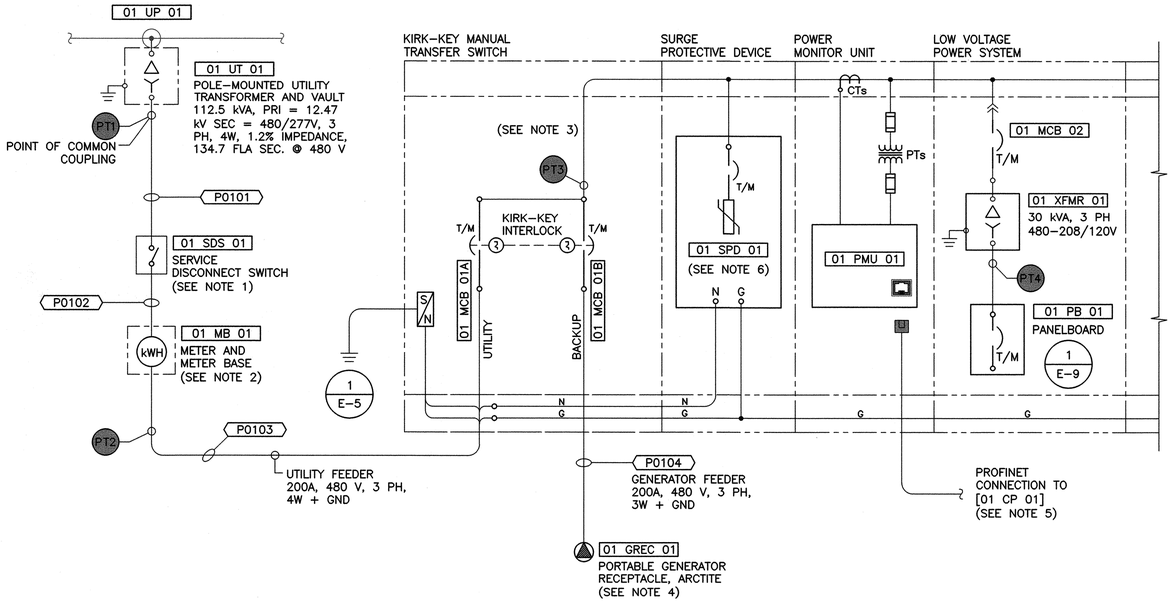
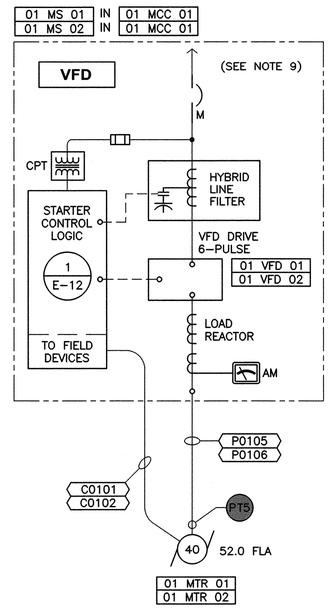
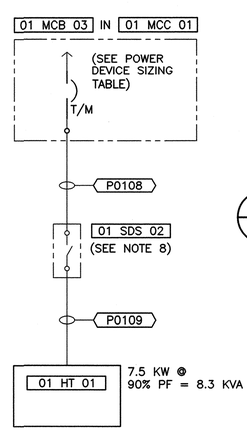


1 / – **MAIN POWER ONE LINE DIAGRAM**
ELECTRICAL POWER SOURCES

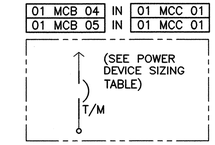


2 / – **ONE LINE DIAGRAM**
BOOSTER PUMP MOTOR STARTERS

[01 MTR 01] = BOOSTER PUMP NO. 1
[01 MTR 02] = BOOSTER PUMP NO. 2



3 / – **ONE LINE DIAGRAM**
UNIT HEATER



4 / – **ONE LINE DIAGRAM**
SPARE BREAKERS

POWER DEVICE SIZING

TAG NUMBER	RATED VOLTAGE	OPERATING VOLTAGE	POLES/ PHASES	AMPACITY	MIN. INTERRUPT AND WITHSTAND RATING	ENCLOSURE TYPE
01 MCB 01A, 01B	600 V	480 V	3	200 AT, 200 AF	42 kAIC	IN [01 MCC 01]
01 MCB 02	600 V	480 V	3	50 AT, 125 AF	42 kAIC	IN [01 MCC 01]
01 MCB 03, 04	600 V	480 V	3	20 AT, 125 AF	42 kAIC	IN [01 MCC 01]
01 MCB 05	600 V	480 V	3	30 AT, 125 AF	42 kAIC	IN [01 MCC 01]
01 MCC 01	REFERENCE SPECIFICATIONS ON SHEET E-10					
01 MS 01, 02	MAGNETIC ONLY, TRIP SIZED BY STARTER MANUFACTURER					
01 SDS 01	600 V	480 V	3	200 A	42 kAIC	NEMA 4X SS

BOLTED FAULT POINTS

FAULT POINT	3 PHASE SHORT CIRCUIT BOLTED FAULT VALUES
PT1	15.1 kAIC
PT2	13.4 kAIC
PT3	12.6 kAIC
PT4	6.7 kAIC
PT5	10.2 kAIC

(SEE NOTE 7)

MCC [01 MCC 01] LOAD SUMMARY TABLE

(CALCULATIONS BASED ON 480V) — D.F. = DEMAND FACTOR

LOAD DESCRIPTION	CONNECTED LOADS STARTER	HP	kVA	UTILITY LOAD DEMAND D.F.	kVA	GENERATOR LOADS D.F.	kVA
[01 MTR 01], MOTOR, BOOSTER PUMP NO. 1	VFD 6PLS	40	41.4	100%	41.4	100%	98.8
[01 MTR 02], MOTOR, BOOSTER PUMP NO. 2	VFD 6PLS	40	41.4	100%	41.4	100%	98.8
[01 HT 01], UNIT HEATER			8.3	100%	8.3	100%	8.3
[01 XFMR 01], TRANSFORMER, 30 KVA, 480-208/120 V, 3 PH			30.0	80%	24.0	80%	24.0
TOTAL kVA:			121.1		115.1		115.1
RESULTING AMPACITY AT 480 VAC, 3 PH:			145.7		138.5		138.5
SYSTEM SIZED AT: 200 A			SPARE CAPACITY:		61.5 A, 30.7%		

NOTES:

1. PROVIDE SAFETY DISCONNECT SWITCH [01 SDS 01] AHEAD OF METER BASE [01 MB 01].
2. REVENUE METER IS PROVIDED BY THE POWER UTILITY COMPANY. METER BASE SHALL BE PROVIDED BY THE CONTRACTOR PER POWER UTILITY COMPANY'S SPECIFICATIONS.
3. THE MANUAL TRANSFER SWITCH FUNCTION SHALL BE PROVIDED BY KIRK-KEY INTERLOCKED BREAKERS [01 MCB 01A] AND [01 MCB 01B]. TO SAFELY DE-ENERGIZE THE MCC, OPEN BOTH BREAKERS AND REMOVE THE KEY. PROVIDE EACH BREAKER WITH AN AUXILIARY CONTACT THAT OPENS WHEN THE BREAKER IS IN ITS OPEN/TRIPPED POSITION. UTILITY DISCONNECT BREAKER [01 MCB 01A] SHALL BE SUSE RATED.
4. GENERATOR RECEPTACLE [01 GREC 01] SHALL BE 200A, 600 VAC, 3W, 4P, STYLE 2 (4-POLE, 3 WIRE PLUS GROUND) WITH REVERSE SERVICE AND SHALL BE PROVIDED WITH A LOCKABLE END CAP; CROUSE-HINDS ARKTITE PART AR2042-S22. PROVIDE WITH AN "AJ" 2" HUB BACK BOX AND ANGLE ADAPTER. THE COMPLETE CROUSE-HINDS RECEPTACLE ASSEMBLY PART NUMBER FOR THE BOX, RECEPTACLE AND ANGLE ADAPTER IS AREA20426. VERIFY A SLOT ALIGNMENT MATCH WITH THE OWNER'S MATING PLUG.
5. POWER MONITOR UNIT [01 PMU 01] SHALL COMMUNICATE TO THE PLC OVER A LAN NETWORK. THE CONTRACTOR SHALL PROVIDE NECESSARY COMMUNICATION CARDS, INTERFACES, CONNECTORS, AND CABLES TO ASSURE A RELIABLE NETWORK CONNECTION BETWEEN THE PMU AND PLC SYSTEMS.
6. [01 SPD 01] SHALL BE 240 kA PER PHASE/120 kA PER MODE, FULL MODE, WITH NEUTRAL, WITH FILTER AND SHALL INCLUDE INTERNAL DISCONNECT WITH OVERCURRENT PROTECTION AND A FORM C CONTACT THAT OPENS WHEN THE UNIT IS FAULTED.
7. THREE PHASE SHORT CIRCUIT BOLTED FAULT CALCULATIONS ARE BASED ON INFINITE UTILITY CONTRIBUTION, +10% VARIANCE IN UTILITY VOLTAGE, -10% VARIANCE IN TRANSFORMER IMPEDANCE, AND A 112.5 KVA TRANSFORMER WITH 1.2% ASSUMED IMPEDANCE. FAULT CALCULATIONS ALSO INCLUDE 1.233 AIC MOTOR REGENERATIVE CONTRIBUTION FROM THE 2x 40 HP MOTORS ADDED TO EACH FAULT POINT. ALL CALCULATIONS ARE BASED ON 480 V.
8. PROVIDE SAFETY DISCONNECT SWITCH FOR [01 HT 01] IF NOT INTEGRAL TO THE UNIT. (4 / ED-2)
9. REFERENCE MOTOR STARTER NOTES ON SHEET E-11.

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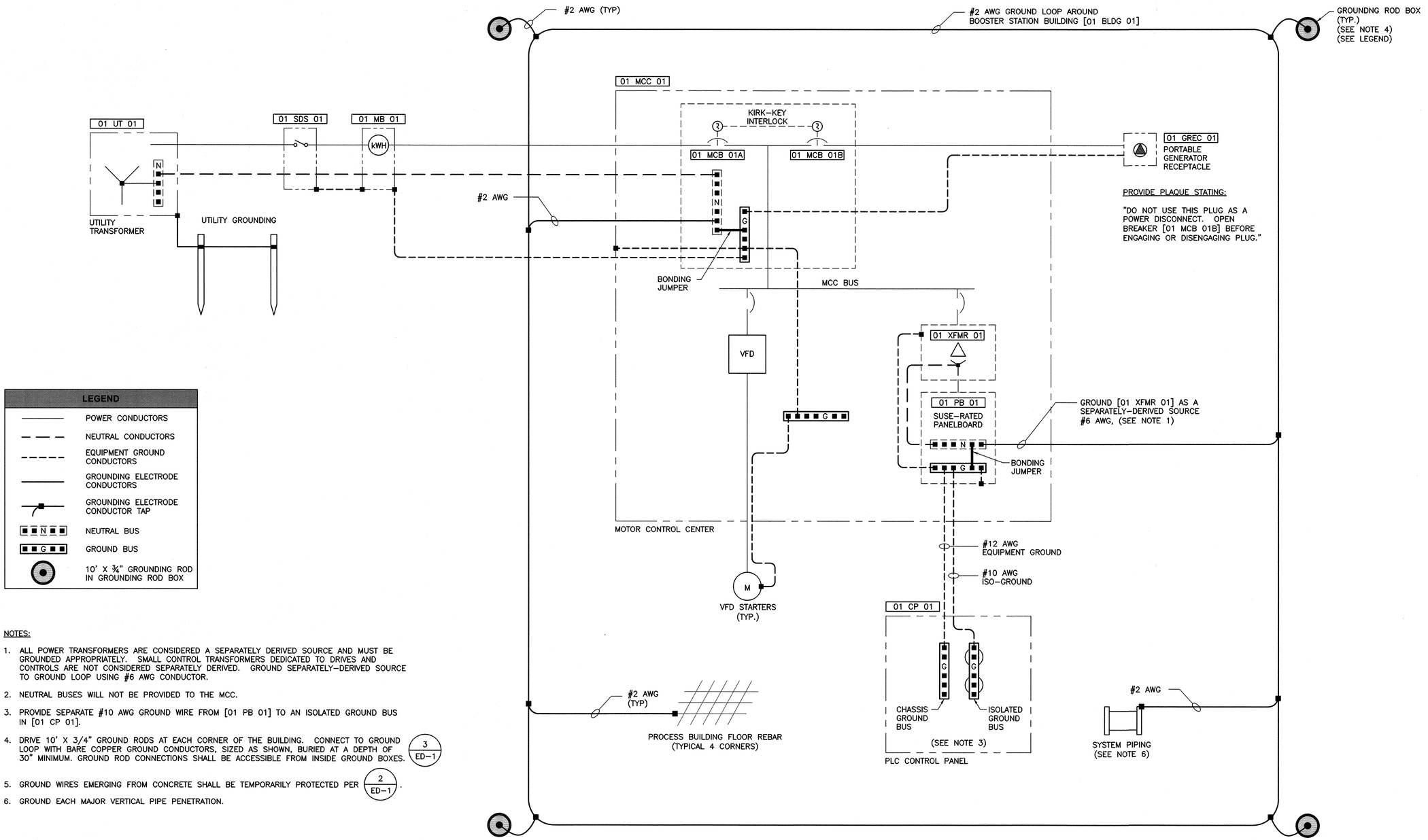
JOHN P. GALLUCCI — STATE OF WASHINGTON — 40252 — REGISTERED PROFESSIONAL ENGINEER — 4/22/15

CITY OF ISSAQUAH
KING COUNTY WASHINGTON
MOUNT HOOD BOOSTER STATION
ONE LINE DIAGRAM

SHEET: E-4
32 OF 45
JOB NO.: 14543
DWG: E_OLD



LEGEND

- POWER CONDUCTORS
- NEUTRAL CONDUCTORS
- EQUIPMENT GROUND CONDUCTORS
- GROUNDING ELECTRODE CONDUCTORS
- GROUNDING ELECTRODE CONDUCTOR TAP
- NEUTRAL BUS
- GROUND BUS
- 10' X ¾" GROUNDING ROD IN GROUNDING ROD BOX

NOTES:

1. ALL POWER TRANSFORMERS ARE CONSIDERED A SEPARATELY DERIVED SOURCE AND MUST BE GROUNDED APPROPRIATELY. SMALL CONTROL TRANSFORMERS DEDICATED TO DRIVES AND CONTROLS ARE NOT CONSIDERED SEPARATELY DERIVED. GROUND SEPARATELY-DERIVED SOURCE TO GROUND LOOP USING #6 AWG CONDUCTOR.
2. NEUTRAL BUSES WILL NOT BE PROVIDED TO THE MCC.
3. PROVIDE SEPARATE #10 AWG GROUND WIRE FROM [01 PB 01] TO AN ISOLATED GROUND BUS IN [01 CP 01].
4. DRIVE 10' X 3/4" GROUND RODS AT EACH CORNER OF THE BUILDING. CONNECT TO GROUND LOOP WITH BARE COPPER GROUND CONDUCTORS, SIZED AS SHOWN, BURIED AT A DEPTH OF 30" MINIMUM. GROUND ROD CONNECTIONS SHALL BE ACCESSIBLE FROM INSIDE GROUND BOXES. (3 / ED-1)
5. GROUND WIRES EMERGING FROM CONCRETE SHALL BE TEMPORARILY PROTECTED PER (2 / ED-1).
6. GROUND EACH MAJOR VERTICAL PIPE PENETRATION.

(1 / –) **GROUNDING ONE LINE DIAGRAM**
ELECTRICAL POWER SOURCES

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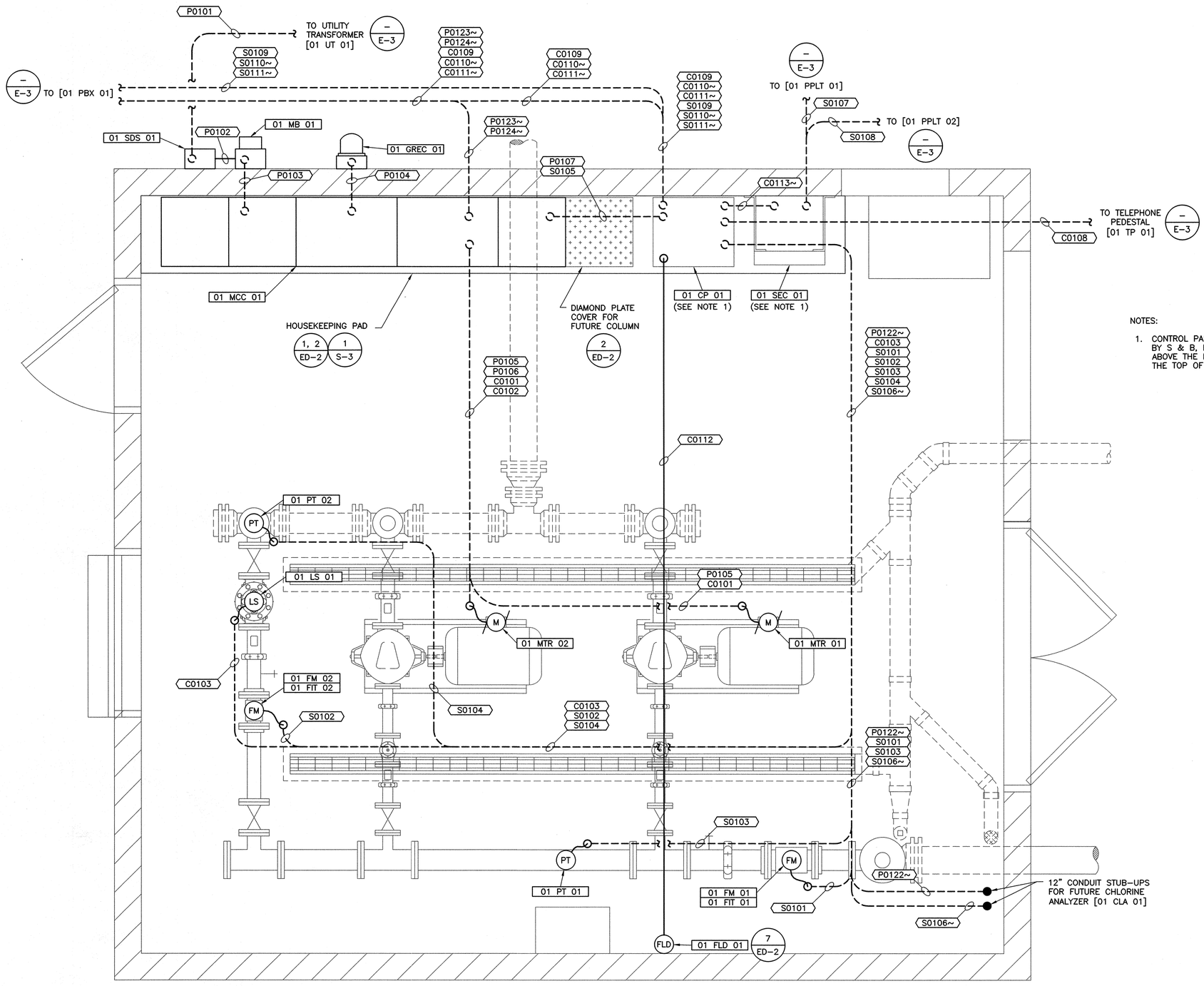
DATE: APR 2015	SCALE: NOTED	DRAWN: TMR	CHECKED: PAM	APPROVED: JPG

No.	REVISION	DATE	APPD

JOHN P. GALLICCHIO — STATE OF WASHINGTON — 40552 — REGISTERED PROFESSIONAL ENGINEER — 4/22/15

CITY OF ISSAQUAH
KING COUNTY WASHINGTON
MOUNT HOOD BOOSTER STATION
GROUNDING ONE LINE DIAGRAM

SHEET: E-5
33 OF 45
JOB NO.: 14543
DWG: E_OLD



1 / – **BOOSTER STATION BUILDING POWER, CONTROL, AND INSTRUMENTATION PLAN**

SCALE: 3/4"=1'-0"

NOTES:

1. CONTROL PANEL [01 CP 01] AND SECURITY RACK [01 SEC 01] ARE PROVIDED BY S & B, INC. MOUNT THE TOP OF SECURITY RACK [01 SEC 01] 72 INCHES ABOVE THE FLOOR. ALIGN FRONT OF THE RACK WITH [01 CP 01]. SECURE THE TOP OF THE RACK TO THE WALL WITH GALVANIZED STEEL BRACKETS.

0 1" 2"

TWO INCHES AT FULL SCALE. IF NOT, SCALE ACCORDINGLY

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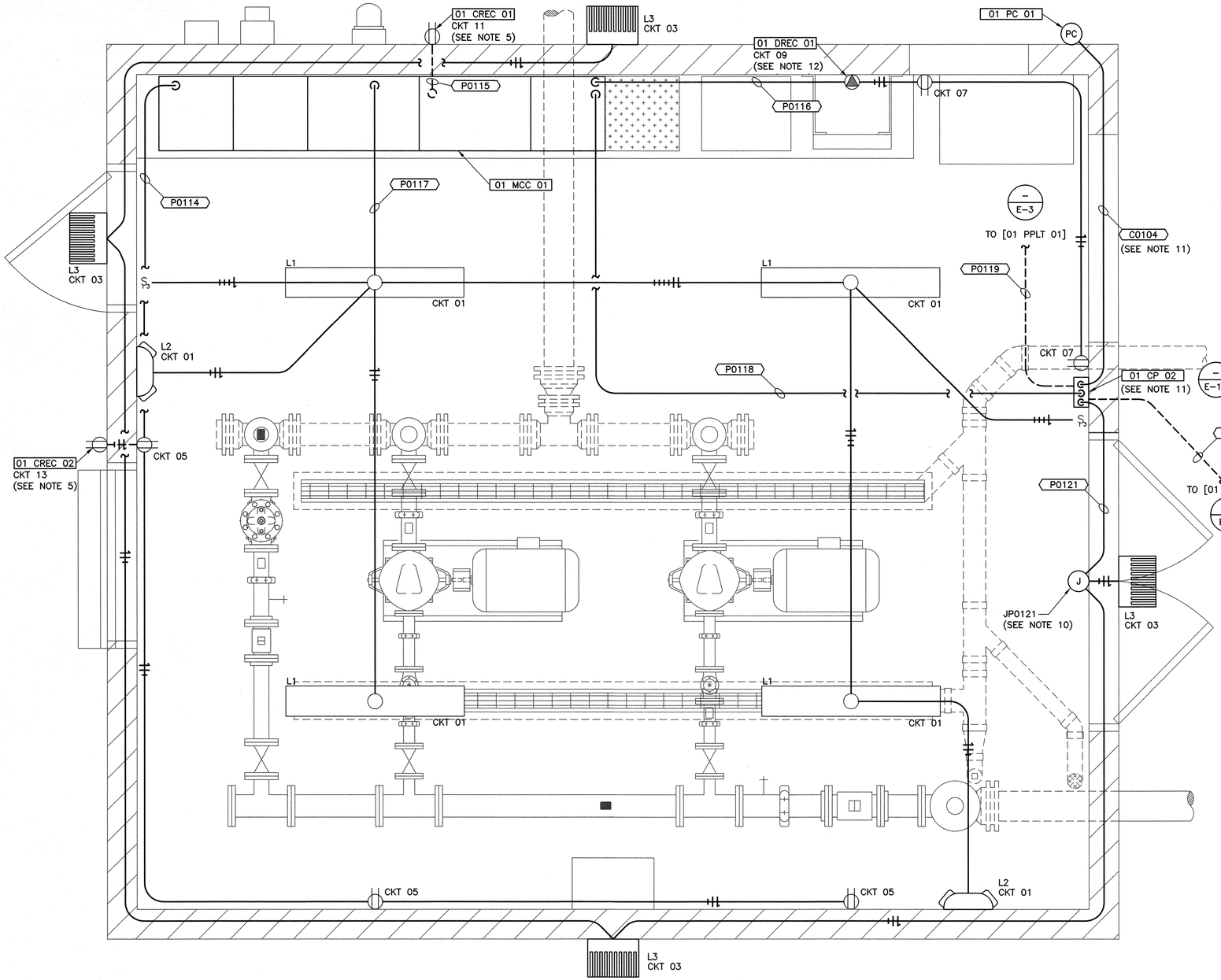
CITY OF ISSAQUAH
KING COUNTY WASHINGTON
MOUNT HOOD BOOSTER STATION
BOOSTER STATION BUILDING POWER, CONTROL, AND INSTRUMENTATION PLAN

SHEET: E-6
34 OF 45
JOB NO.: 14543
DWG: E_BLDG_PLN



1/– BOOSTER STATION BUILDING LIGHTING AND RECEPTACLE PLAN

SCALE: 3/4"=1'-0"

NOTES:

1. SEE GENERAL NOTES (–/E-1) AND LIGHTING FIXTURE SCHEDULE (–/E-2).
2. CONDUIT NUMBERS FOR CONVENIENCE RECEPTACLE AND LIGHTING CIRCUITS ARE ONLY APPLIED TO THE CONDUIT LEAVING THE POWER SOURCE. CONDUITS BETWEEN DEVICES ARE REQUIRED AND ARE NOT SHOWN IN THE CABLE AND CONDUIT SCHEDULE.
3. RECEPTACLES SHALL BE SURFACE MOUNTED TO THE INTERIOR AND EXTERIOR WALLS. LIGHT SWITCHES AND INTERIOR RECEPTACLES SHALL BE MOUNTED 42 INCHES ABOVE THE FLOOR. EXTERIOR RECEPTACLES SHALL BE ALIGNED WITH THE VERTICAL CENTER OF THE BOTTOM ROW OF SMOOTH BLOCKS.
4. ALL INTERIOR CONVENIENCE RECEPTACLES SHALL BE 20A, WHITE, GFCI, DUPLEX, IN CAST ALUMINUM BOXES WITH WEATHERPROOF COVERS.
5. EXTERIOR RECEPTACLES [01 CREC 01] AND [01 CREC 02] SHALL BE 20A, WHITE, NON-GFCI, DUPLEX, IN A CAST ALUMINUM BOX WITH FULL IN SERVICE COVER. GFCI PROTECTED IN [01 PB 01].
6. THE ROUTING OF CONDUITS FOR LIGHTING AND RECEPTACLES ARE SHOWN FOR CLARITY ONLY. THE CONTRACTOR MAY USE MORE DIRECT ROUTING. ROUTE CONDUITS IN THE ATTIC IN RGS CONDUIT. DO NOT EXPOSE HORIZONTAL PORTIONS OF THESE CONDUITS. (5/ED-1)
7. EXPOSED CONDUITS TO CONVENIENCE RECEPTACLES AND LIGHT SWITCHES SHALL BE 1/2-INCH TRADE SIZE RGS.
8. THE POWER CONDUCTORS TO EMERGENCY LIGHTS SHALL NOT BE SWITCHED.
9. LIGHTS SHALL BE SURFACE MOUNTED TO CEILING. EMERGENCY LIGHTS SHALL BE MOUNTED 7'-6" ABOVE FLOOR.
10. TO AVOID PHYSICAL CONFLICTS WITH THE TROLLEY BEAM, INSTALL J-BOX JP0121 JUST UNDER THE BEAM. CONNECT TO THE LIGHT FROM THE J-BOX. PLACE LIGHT ON LOWEST SMOOTH BLOCK. COORDINATE THE ELECTRICAL MOUNTING WITH THE CONTRACTOR. REMAINING EXTERIOR BUILDING LIGHT CONDUITS ARE NOT NUMBERED. (A/S1-1)
11. LOCATION OF CONTROL PANEL [01 CP 02] AND CONDUIT ROUTING TO OUTDOOR LIGHTING EQUIPMENT ARE SHOWN FOR CLARITY ONLY. [01 CP 02] SHALL BE MOUNTED ABOVE THE LIGHT SWITCH. CONDUITS SHALL RUN IN A MORE DIRECT ROUTE AND NOT THROUGH THE WALLS UNLESS EXITING THE BUILDING TO LIGHT FIXTURES.
12. [01 DREC 01] SHALL BE 4-PLEX.

0 1" 2"
TWO INCHES AT FULL SCALE.
IF NOT, SCALE ACCORDINGLY

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CITY OF ISSAQUAH
KING COUNTY WASHINGTON
MOUNT HOOD BOOSTER STATION
BOOSTER STATION BUILDING LIGHTING AND RECEPTACLE PLAN

SHEET: E-7
35 OF 45
JOB NO.: 14543
DWG: E_BLDG_PLN

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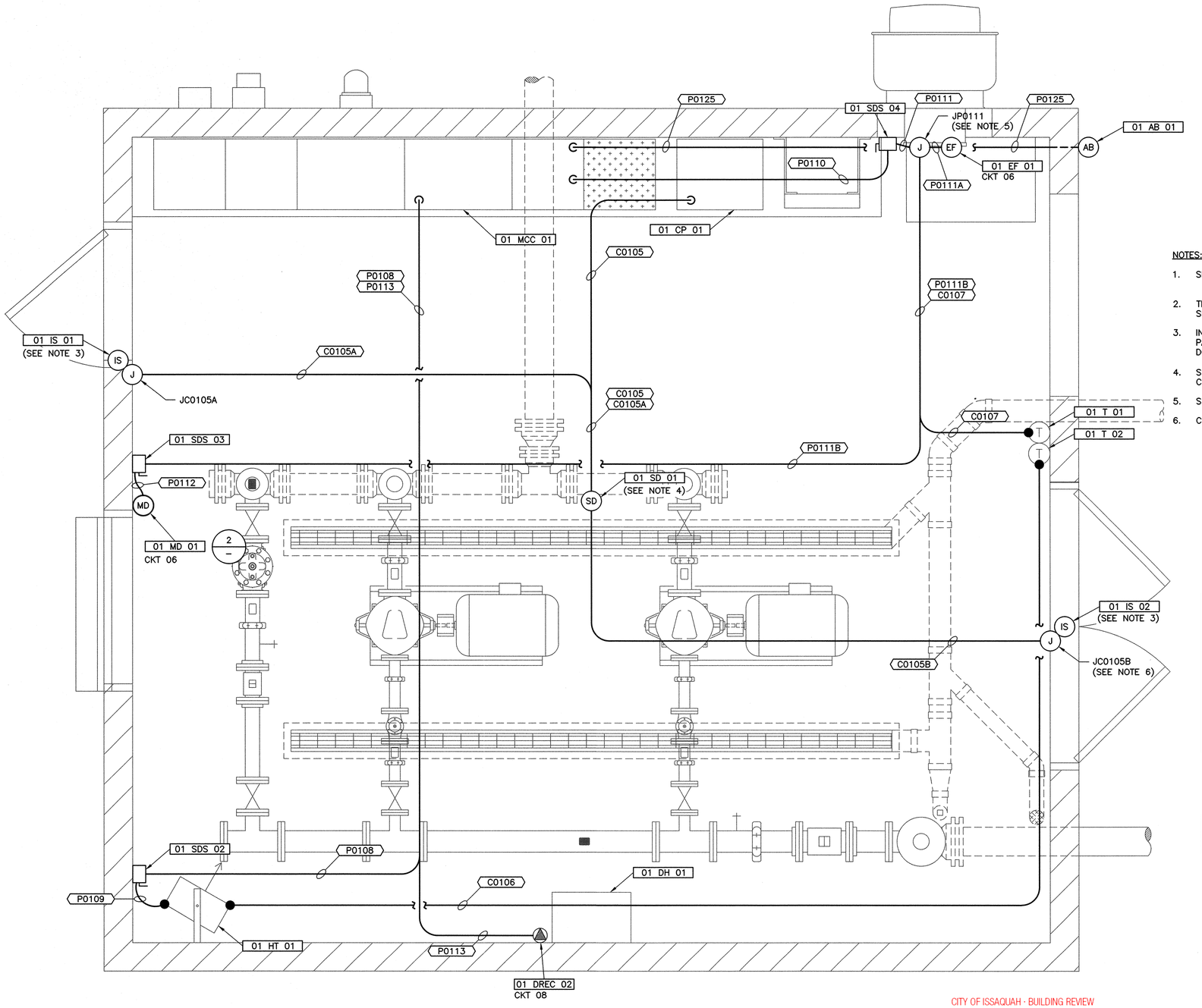
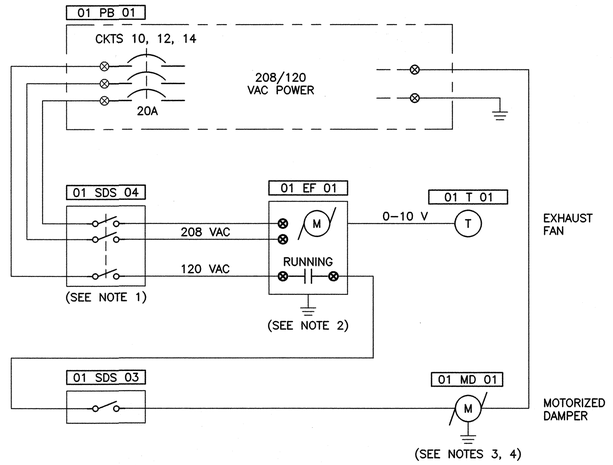


1 – **BOOSTER STATION BUILDING HVAC, FIRE, AND SECURITY PLAN**
SCALE: 3/4"=1'–0"

CITY OF ISSAQUAH - BUILDING REVIEW
APPROVED
ALL WORK SUBJECT TO FIELD INSPECTION

NOTES:

1. SEE GENERAL NOTES ON (– / E–1).
2. THE CONTRACTOR MAY USE MORE DIRECT ROUTING WHERE APPROPRIATE FOLLOWING WSDOT SPECIFICATION SECTION 8–20.1.
3. INTRUSION SWITCH CIRCUITS SHALL BE 24 VDC, EACH WIRED SEPARATELY TO THE MAIN CONTROL PANEL. INTRUSION SWITCHES SHALL BE WIRED SUCH THAT THEY ARE OPEN–CIRCUITED WHEN THE DOOR IS OPEN, CLOSED WHEN THE DOOR IS CLOSED.
4. SMOKE DETECTORS SHALL BE 24 VDC POWERED WITH FORM C (DRY) CONTACTS. WIRE THE CONTACTS TO BE OPEN WHEN IN THE ALARM CONDITION, CLOSED UNDER NORMAL CONDITIONS.
5. SPLICING IS ALLOWED IN JP0111.
6. COORDINATE ELECTRICAL INSTALLATIONS AT THE EAST DOOR WITH THE CRANE BEAM (A / S1–1).



NOTES:

1. SAFETY DISCONNECT SWITCH [01 SDS 04] MAY BE ELIMINATED IF THE EXHAUST FAN UNIT IS EQUIPPED WITH AN INTEGRAL LOCKABLE SAFETY DISCONNECT SWITCH.
2. THE EXHAUST FAN UNIT INCLUDES A 208 VAC, 1 PH VFD DRIVE WITH AN AUXILIARY "RUNNING" CONTACT TO BE USED FOR OPENING THE MOTORIZED DAMPERS.
3. THE MOTORIZED DAMPER IS SHOWN AS ONE DEVICE BUT MAY CONSIST OF SEVERAL SMALL ASSOCIATED MOTORS DEPENDING ON THE MANUFACTURER. CONNECT ALL DEVICES.
4. DAMPERS SHALL BE WIRED TO "OPEN" WHEN POWERED.

2 TYP – **EXHAUST SYSTEM ELEMENTARY WIRING DIAGRAM**
NOT TO SCALE

0 1" 2"
TWO INCHES AT FULL SCALE.
IF NOT, SCALE ACCORDINGLY

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CITY OF ISSAQUAH
WASHINGTON
KING COUNTY
MOUNT HOOD BOOSTER STATION
BOOSTER STATION BUILDING HVAC, FIRE, AND SECURITY PLAN

SHEET: E-8
36 OF 45
JOB NO.: 14543
DWG: E_BLDG_PLN

PANELBOARD [01 PB 01] SCHEDULE

CKT. NO.	DIRECTORY	PHASE A VA	PHASE A A	PHASE B VA	PHASE B A	PHASE C VA	PHASE C A	LOAD TYPE	BKR AMPS	BUS	BKR AMPS	LOAD TYPE	PHASE A VA	PHASE A A	PHASE B VA	PHASE B A	PHASE C VA	PHASE C A	DIRECTORY	CKT. NO.
1	INTERIOR LIGHTING	256	2.1					L	1/20	A	1/20	Z	500	4.2					[01 CP 01], CONTROL PANEL, PLC, PROCESS CONTROL POWER	2
3	EXTERIOR LIGHTING			160	1.3			L	1/20	B	1/20	Z			500	4.2			[01 CP 01], CONTROL PANEL, PLC, ANCILLARY CONTROL POWER	4
5	CONVENIENCE RECEPTACLES, SOUTH AND WEST					540	4.5	R	1/20	C	1/20	L					239	2.0	[01 CP 02], CONTROL PANEL, EXTERIOR LIGHTING	6
7	CONVENIENCE RECEPTACLES, NORTH AND EAST	360	3.0					R	1/20	A	1/20	H	500	4.2					[01 DREC 02], DEDICATED RECEPTACLE, DEHUMIDIFIER	8
9	[01 DREC 01], DEDICATED RECEPTACLE, CAMERA/DVR CONTROL PANEL			100	0.8			R	1/20	B	3/20	M			915	7.6			EXHAUST FAN [01 EF 01] AND MOTORIZED DAMPER [01 MD 01]	10
11	[01 CREC 01], CONVENIENCE RECEPTACLE EXTERIOR, NORTH GFCI					180	1.5	R	1/20	C	|	M					915	7.6	EXHAUST FAN [01 EF 01] AND MOTORIZED DAMPER [01 MD 01]	12
13	[01 CREC 02], CONVENIENCE RECEPTACLE EXTERIOR, WEST GFCI	180	1.5					R	1/20	A	|	M	915	7.6					EXHAUST FAN [01 EF 01] AND MOTORIZED DAMPER [01 MD 01]	14
15	SPARE BREAKER			–	–			Z	1/20	B	1/20	Z			–	–			SPARE BREAKER	16
17	SPARE BREAKER					–	–	Z	1/20	C	1/20	Z					–	–	SPARE BREAKER	18
19	SPARE BREAKER	–	–					Z	1/20	A	1/20	Z	–	–					SPARE BREAKER	20
21	SPARE BREAKER			–	–			Z	1/20	B	1/20	Z			–	–			SPARE BREAKER	22
23	SPARE BREAKER					–	–	Z	1/20	C	1/20	Z					–	–	SPARE BREAKER	24
25	SPARE BREAKER	–	–					Z	1/20	A	1/20	Z	–	–					SPARE BREAKER	26
27	SPARE BREAKER			–	–			Z	1/20	B	1/20	Z			–	–			SPARE BREAKER	28
29	SPARE BREAKER					–	–	Z	1/20	C	1/20	Z					–	–	SPARE BREAKER	30
31	SPARE BREAKER	–	–					Z	1/20	A	1/20	Z	–	–					SPARE BREAKER	32
33	SPARE BREAKER			–	–			Z	1/20	B	1/20	Z			–	–			SPARE BREAKER	34
35	SPARE BREAKER					–	–	Z	1/20	C	1/20	Z					–	–	SPARE BREAKER	36
	SUM OF PHASE VA, AMPS	796	6.6	260	2.2	720	6.0						1,915	16.0	1,415	11.8	1,154	9.6	SUM OF PHASE VA, AMPS	

[01 PB 01] ELECTRICAL AND CONSTRUCTION SPECIFICATIONS:

CONFIGURATION:	208/120 VAC, 3 PH, 60 Hz
POWER BUS:	125 A, COPPER
NEUTRAL BUS:	125 A (100% OF POWER BUS), ISOLATED FROM GROUND, SOLDERLESS CONNECTIONS
GROUND BUS:	PROVIDE PER UL 67
BUS BRACING:	10 kAIC, MINIMUM
MAIN BREAKER:	110 AT, 125 AF, 3 PH, 3 P, 10 kAIC, MOLDED CASE, VERTICAL MOUNTING
DISTRIBUTION BREAKERS:	BOLT–ON, MOLDED CASE, 10 kAIC, MINIMUM
GROUND BONDING:	SUITABLE FOR SERVICE ENTRY
ENCLOSURE:	NEMA 1
NUMBER OF CIRCUITS:	36
UNCOMMITTED CIRCUITS:	FILL WITH SPARE 20 A, 1 P, 10 kAIC BREAKERS
POWER DERIVED FROM:	[01 XFMR 01], TRANSFORMER, 30 KVA, 208/120 VAC, 3 PH
BUS BREAKERS:	3 POLE, 1x 20 A, 10 kAIC
	1 POLE, 33x 20 A, 10 kAIC

LOAD DISTRIBUTION:	AMPS	VA	%
BY PHASE:			
TOTAL LOAD, PHASE A:	22.6 A	2,711 VA	43.3%
TOTAL LOAD, PHASE B:	14.0 A	1,675 VA	26.8%
TOTAL LOAD, PHASE C:	15.6 A	1,874 VA	29.9%
BY LOAD TYPE:			
TOTAL LIGHTING (L):		655 VA	10.5%
TOTAL MOTOR (M):		2,746 VA	43.8%
TOTAL HVAC (H):		500 VA	8.0%
TOTAL RECEPTACLE (R):		1,360 VA	21.7%
TOTAL OTHER (Z):		1,000 VA	16.0%
TOTAL CONNECTED LOAD:		6.26 kVA	100.0%
CALCULATED DEMAND LOAD:		7.11 kVA	

NOTES:

1. THE CONTRACTOR SHALL PROVIDE A TYPED PANELBOARD SCHEDULE FOR ALL ACTUAL LOAD ASSIGNMENTS.

LEGEND:

GFCI DENOTES GFCI PANELBOARD CURCUIT BREAKER.

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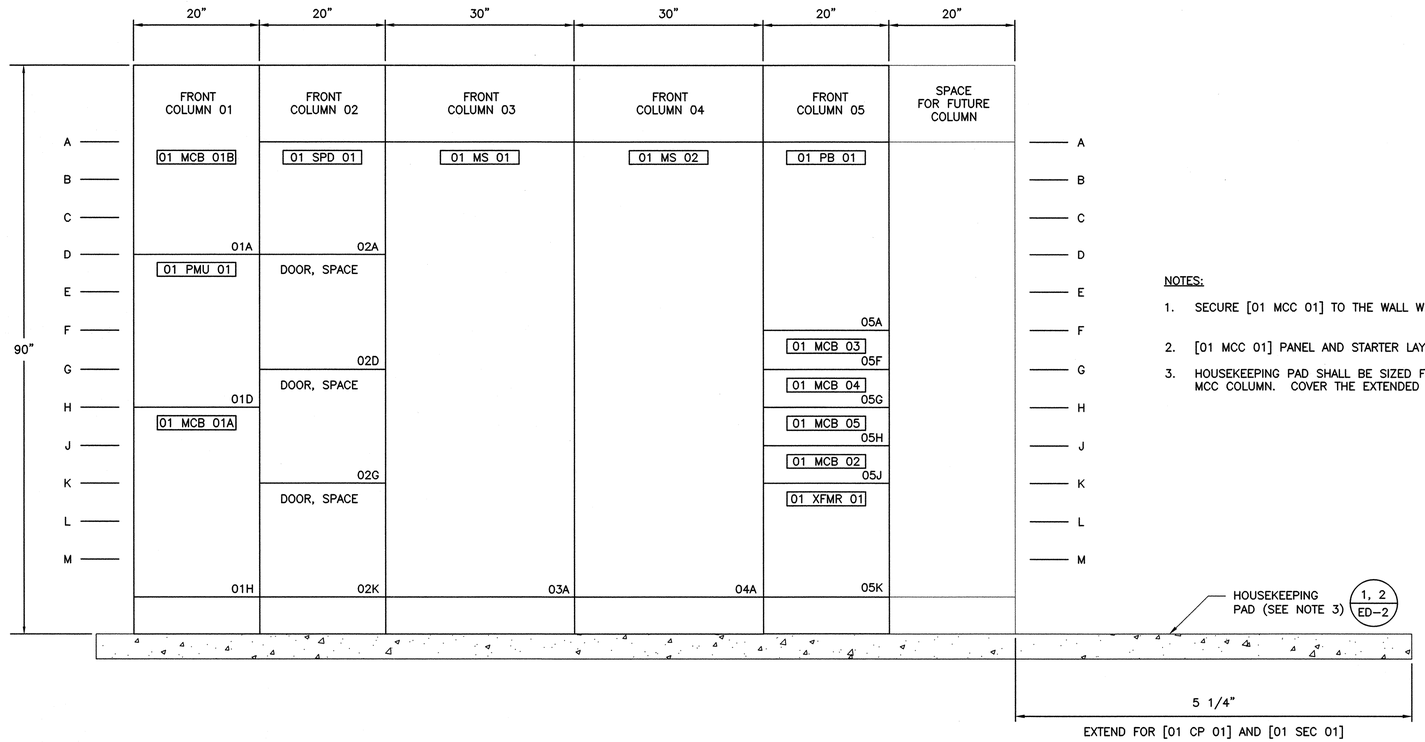
PAUL P. GALLUCCI — STATE OF WASHINGTON — 40554 — REGISTERED PROFESSIONAL ENGINEER

CITY OF ISSAQUAH
KING COUNTY WASHINGTON
MOUNT HOOD BOOSTER STATION
PANELBOARD [01 PB 01] SCHEDULE

SHEET: E-9
37 OF 45

JOB NO.: 14543
DWG: E_PB



NOTES:

1. SECURE [01 MCC 01] TO THE WALL WITH A SPACING AS SHOWN ON 3 / ED-2.
2. [01 MCC 01] PANEL AND STARTER LAYOUTS ARE BASED ON SIEMENS, TIASTAR MCC DATA.
3. HOUSEKEEPING PAD SHALL BE SIZED FOR A MINIMUM OF 1 ADDITIONAL MCC COLUMN. COVER THE EXTENDED PAD WITH DIAMOND PLATE AS PER 2 / ED-2.

1 / – **[01 MCC 01] ELEVATION**

NOT TO SCALE

MOTOR CONTROL CENTER [01 MCC 01]

ELECTRICAL AND CONSTRUCTION SPECIFICATION REQUIRMENTS

BUS MATERIAL:	COPPER, TIN–PLATED (ALL BUSES)
VOLTAGE RATING:	600 VAC
CONFIGURATION:	480 VAC, 3 PH, 60 Hz, 3 W + GROUND
MAIN BUS:	600 A, HORIZONTAL, SLEEVE–WRAP INSULATED
ENTRY COLUMN VERTICAL BUS:	600 A
OTHER VERTICAL BUS:	300 A (MINIMUM), SIZE FOR COLUMN LOAD
GROUND BUS:	300 A (50% OF MAIN BUS), HORIZONTAL
BUS BRACING:	42 kAIC
WIRING:	CLASS 2B
CONTROL WIRING:	#14 AWG, MTW

MCC PHYSICALS

STRUCTURE:	SINGLE SIDED, NEMA 1 GASKETED
SERVICE ENTRY LOCATION:	BOTTOM, LEFT COLUMN

MCC OPTIONS

NEUTRAL BUS:	NO
TVSS:	YES; 240 kA, 3 PH, WITH STATUS LIGHTS, OCPD, AND FORM A "FAULT" CONTACT
POWER MONITOR UNIT:	YES; 3 PH (SEE NOTE 1)
MAIN DISCONNECT BREAKER:	YES; 200 AT, 225 AF, 480 VAC, 3 PH, 42 kAIC, 1 TERMINAL/PH, SUSE RATED
AUTOMATIC TRANSFER SWITCH:	NO, KIRK KEY INTERLOCK

MOTOR CONTROL CENTER SCHEDULE

SECTION	UNIT	DESCRIPTION (NAMEPLATE)	TAG ID NO.	NOTES
01	A	MCC BREAKER, GENERATOR, KIRK–KEY	01 MCB 01B	KIRK–KEY INTERLOCK
01	D	POWER MONITOR UNIT	01 PMU 01	
01	H	MCC BREAKER, UTILITY SERVICE, KIRK–KEY	01 MCB 01A	KIRK–KEY INTERLOCK
02	A	SURGE PROTECTIVE DEVICE	01 SPD 01	
02	D	SPACE		DOOR (SPACE)
02	G	SPACE		DOOR (SPACE)
02	K	SPACE		DOOR (SPACE)
03	A	MOTOR STARTER, PUMP NO. 1 MOTOR	01 MS 01	
04	A	MOTOR STARTER, PUMP NO. 2 MOTOR	01 MS 02	
05	A	PANELBOARD, 208/120 VAC, 3 PH	01 PB 01	
05	F	MCC BREAKER, FOR [01 HT 01]	01 MCB 03	
05	G	MCC BREAKER, SPARE	01 MCB 04	
05	H	MCC BREAKER, SPARE	01 MCB 05	
05	J	MCC BREAKER, FOR [01 XFMR 01]	01 MCB 02	
05	K	TRANSFORMER, 30 kVA, 208/120 VAC, 3 PH	01 XFMR 01	

0 1" 2"

TWO INCHES AT FULL SCALE.
IF NOT, SCALE ACCORDINGLY

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JOHN P. GALLICCHIO — STATE OF WASHINGTON — 40552 — REGISTERED PROFESSIONAL ENGINEER — 4/22/15

CITY OF ISSAQUAH
KING COUNTY WASHINGTON
MOUNT HOOD BOOSTER STATION
[01 MCC 01] ELEVATION, SPECIFICATIONS, AND SCHEDULE

SHEET: E-10
38 OF 45

JOB NO.: 14543
DWG: E_MCCEL

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MOTOR STARTER GENERAL NOTES:

G.1. REFERENCE SPECIFICATIONS.

G.2. METAL OXIDE VARISTORS SHALL PARALLEL EACH 120 VAC CONTROL RELAY AND TIMER COIL. SURGE PROTECTION DIODES SHALL PARALLEL EACH 24 VDC RELAY COIL.

G.3. ALL PILOT LIGHTS SHALL BE PUSH-TO-TEST LED STYLE.

"MOTOR RUNNING" STATUS = GREEN
ANY FAULT OR ALARM = AMBER

G.4. SET THE MOTOR OVERTEMP TIMER DELAY ACCORDING TO MOTOR MANUFACTURER'S RECOMMENDATIONS. MINIMUM = 1 SECOND.

G.5. PROVIDE AN ELECTRO-MECHANICAL ELAPSED TIME METER AND MOTOR START COUNTER ON A SINGLE METER.

G.6. SIZE STARTER CONTROL TRANSFORMERS TO HANDLE ALL DRIVE/STARTER CONTROL DEVICES AS PER REFERENCED ELEMENTARY WIRING DIAGRAMS PLUS 25%. UPSIZE FOR REMOTE PANEL HEATERS AND INTRINSICALLY SAFE BARRIERS WHERE APPLICABLE.

G.7. VFD CONTROLLERS SHALL BE CONFIGURED TO RESET FROM A DOOR-MOUNTED STANDARD PUSHBUTTON - NOT FROM A MANUFACTURER'S DOOR-MOUNTED CONTROL MODULE. PROVIDE A RESET PUSHBUTTON ON THE STARTER DOOR PER SPECIFICATION FOR THIS PURPOSE.

G.8. "RUN COMMAND" TIMERS PREVENT IMMEDIATE MOTOR STARTING ON REAPPLICATION OF POWER AND STAGGER THE STARTING OF MOTORS WITHIN A GROUP. THIS FUNCTION SHALL BE PROGRAMMED INTO VFD DRIVE.

G.9. FRONT PANEL DIAL-TYPE AMMETERS SHALL BE PROVIDED FOR STARTERS SHOWN ON THE ONE LINE DIAGRAM OR REFERENCED IN THESE MOTOR STARTER ELEMENTARY WIRING DIAGRAMS. SCALE THE AMMETERS PER "MOTOR STARTER DESIGN SUMMARY" TABLE ON THIS SHEET.

G.10. MCC MANUFACTURER SHALL SIZE MOTOR STARTER/DRIVE BREAKERS AND OVERLOAD PROTECTION SETTINGS BASED ON NEC AND MOTOR MANUFACTURER'S REQUIREMENTS.

G.11. MOTOR STARTER BREAKERS SHALL BE MAGNETIC ONLY.

G.12. STARTER BREAKERS SHALL BE LOCKABLE IN THE OPEN POSITION AND SHALL BE PROVIDED WITH A DOOR LATCHING MECHANISM THAT ALLOWS THE DOOR TO OPEN UNDER POWER WITH A SPECIAL TOOL. PROVIDE AN AUXILIARY CONTACT ON STARTER BREAKER THAT IS OPEN WHEN THE BREAKER IS OPEN AND CLOSED WHEN THE BREAKER IS CLOSED.

G.13. PROVIDE AN ARC FLASH WARNING LABEL ON THE DOOR.

VFD SPECIFIC NOTES:

V.1. THE VFD SHALL PROVIDE THE FOLLOWING CONDITIONS OVER THE NETWORK:

INTERNAL PROTECTION	MOTOR/DRIVE DATA	MOTOR DATA (CONT.)
THERMAL OVERLOAD	MOTOR SPEED (Hz)	REAL POWER (kW)
DRIVE FAULT	MOTOR AVERAGE CURRENT	MOTOR POWER FACTOR
	MOTOR AVERAGE VOLTAGE	DC BUS VOLTAGE

V.2. THE DRIVE SHALL BE DISABLED, AND THE FAULT STATUS INDICATOR MADE, ON ANY COMBINATION OF "INTERNAL PROTECTION" CONDITIONS LISTED IN NOTE V.1.

V.3. VFD PROGRAMMING REQUIREMENTS:

IN AUTO, SPEED IS CONTROLLED BY THE PLC OVER THE NETWORK.
IN HAND, SPEED IS CONTROLLED BY THE FRONT PANEL SPEED POT.

A. PROGRAM FOR AUTO RESET.
B. PROGRAM FOR SPEED POT CONTROL WHEN THE "MANUAL SPEED" DIGITAL INPUT TO THE DRIVE IS TRUE. IF NOT TRUE, THEN SPEED FROM PLC OVER THE NETWORK.
C. PROGRAM TO NOT OPERATE BELOW MINIMUM SPEED.
D. PROGRAM FOR BUMPLESS TRANSFER BETWEEN AUTO AND MANUAL MODES.

V.4. THE HIM SHALL BE MOUNTED ON THE STARTER DOOR. PROVIDE ALL CABLING, HARDWARE, AND CONNECTORS FOR DOOR MOUNT AS PER SPECIFICATION. HIM CABLES SHALL BE PHYSICALLY SEPARATED FROM 120 VAC CIRCUITS BY 6 INCHES (MINIMUM).

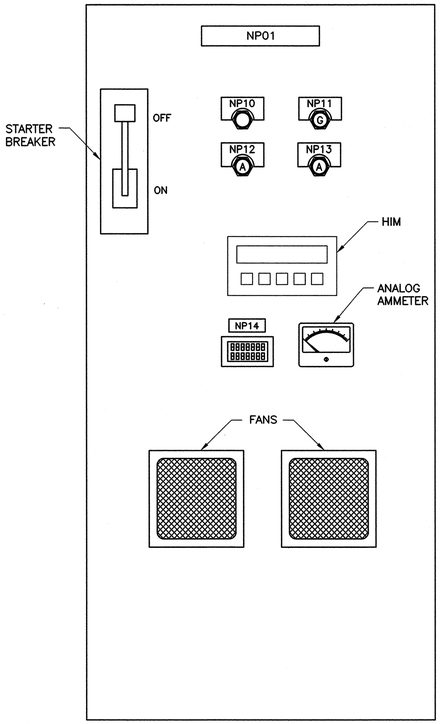
V.5. THE VFD DRIVE CONTROLS ARE ASSOCIATED WITH SIEMENS DRIVE TECHNOLOGIES.

V.6. DRIVE MANUFACTURER SHALL SIZE AND PROVIDE DRIVE COOLING FANS, THERMOSTAT AND ASSOCIATED CONTROL LOGIC AS SHOWN. THERMOSTAT SHALL BE FACTORY SET BY THE MANUFACTURER.

V.7. PROVIDE A SEPARATE RESET PUSHBUTTON ON THE STARTER DOOR PER SPECIFICATION (DRIVE RESET SHALL NOT BE INTEGRATED INTO THE HMI).

V.8. DRIVE MANUFACTURER SHALL SIZE LOAD REACTOR AND LINE FILTER FOR STABLE MOTOR OPERATION AND COMPLIANCE WITH IEEE 519-1992. LOAD REACTOR MINIMUM = 5%.

V.9. VFDS SHALL COMMUNICATE WITH THE PLC OVER A PROFINET CONTROL NETWORK.



SHADED DEVICES ON MOTOR STARTER ELEMENTARY WIRING DIAGRAMS ARE REMOTE FROM THE STARTER.

MOTOR STARTER DESIGN SUMMARY

TAG	MOTOR STARTER FOR:	TYPE	HP	FLA	AMMETER *	THERMAL PROTECTION	MSDS DISCONNECT	NETWORKED	SELECTOR SWITCH TYPE **	AUTO CONTROL FROM	NOTES
[01 MS 01]	BOOSTER PUMP NO. 1	VFD	40	52.0	0-100 A	WINDING	NO, SEE NOTE 1	YES, PROFINET	HOA, LOCAL	[01 PLC 01]	
[01 MS 02]	BOOSTER PUMP NO. 2	VFD	40	52.0	0-100 A	WINDING	NO, SEE NOTE 1	YES, PROFINET	HOA, LOCAL	[01 PLC 01]	

TABLE NOTES:
* RANGE OF DOOR-MOUNTED AMMETER.
** LOCAL MEANS LOCAL TO MOTOR STARTER (ON STARTER DOOR). REMOTE MEANS REMOTE FROM STARTER.

1. MOTOR STARTERS ARE WITHIN SITE OF THE MOTORS. MOTOR STARTER BREAKERS ARE LOCKABLE IN THEIR OPEN POSITION AND PROVIDE THE MOTOR SAFETY DISCONNECT FUNCTION.

1 / – **MOTOR STARTER NOTES AND SCHEDULE**
NOT TO SCALE

PANEL DOOR NAMEPLATE SCHEDULE

ITEM NUMBER	ITEM FUNCTION
NP01	SEE LINES 1 AND 2 BELOW
NP10	RESET ALL (PUSHBUTTON, RED)
NP11	MOTOR RUNNING (PILOT, GREEN)
NP12	MOTOR FAULT (PILOT, AMBER)
NP13	MOTOR OVERTEMP (PILOT, AMBER)
NP14	ELAPSED TIME/COUNTER METER

LINE 1	LINE 2
BOOSTER PUMP NO. 1	[01 MS 01]
BOOSTER PUMP NO. 2	[01 MS 02]

NOTES:

1. THESE DETAILS ARE INTENDED TO SHOW A GENERAL LAYOUT OF DEVICES EXPECTED ON THE STARTER DOORS AND ARE NOT INTENDED TO REPRESENT ACTUAL STARTER OR STARTER DOOR SIZES.

2 / – **MOTOR STARTER DOOR DETAIL**
NOT TO SCALE

0 1" 2"
TWO INCHES AT FULL SCALE.
IF NOT, SCALE ACCORDINGLY

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SEATTLE, WASHINGTON 98109 • (206) 284-0860

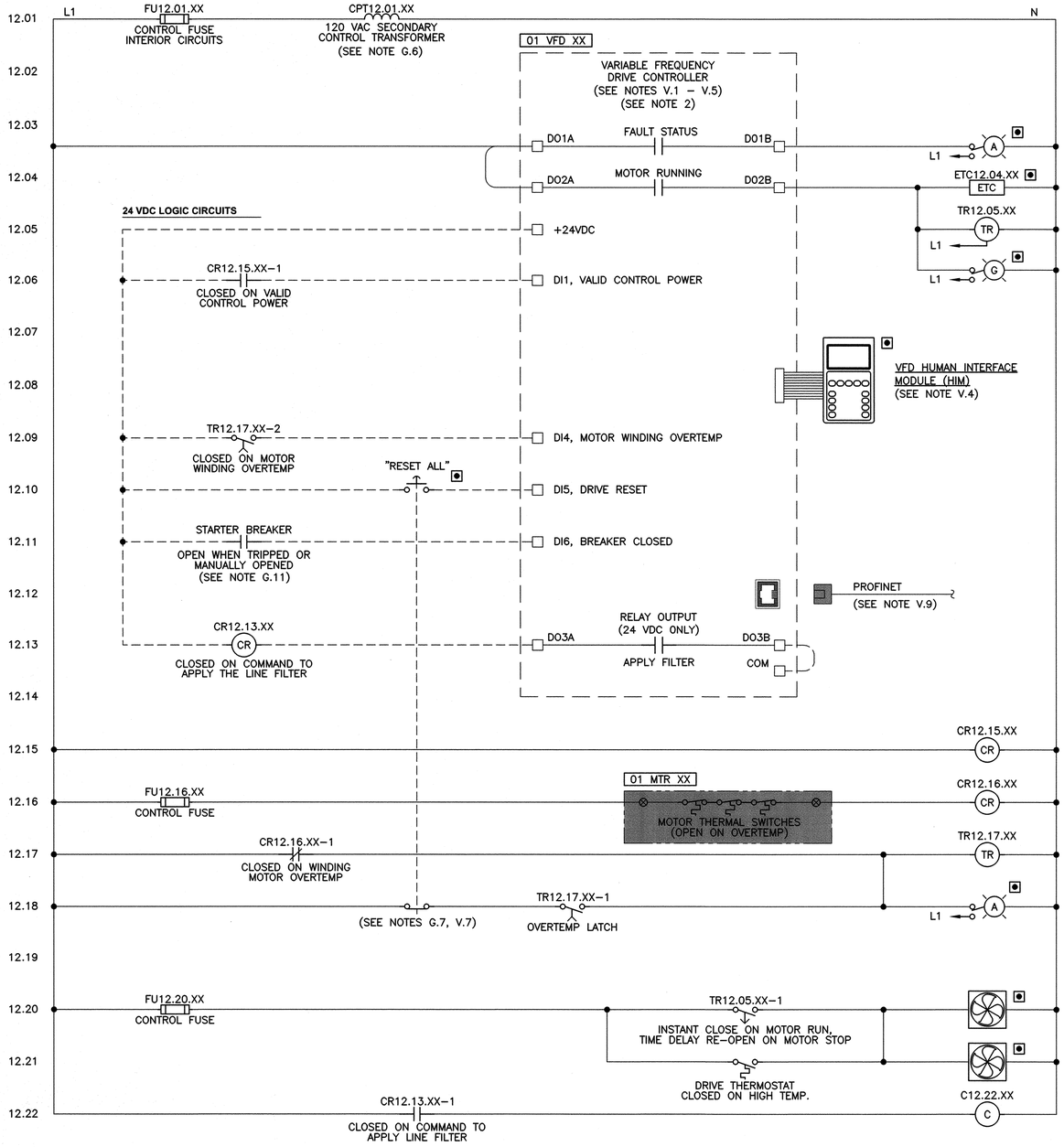
DATE: APR 2015 | SCALE: NOTED | DRAWN: TMR | CHECKED: PAM | APPROVED: JPG

No.	REVISION	DATE	APPD

JOHN P. GALLUCCI — STATE OF WASHINGTON — REGISTERED PROFESSIONAL ENGINEER — 40554 — 4/22/15

CITY OF ISSAQUAH
KING COUNTY WASHINGTON
MOUNT HOOD BOOSTER STATION
MOTOR STARTER NOTES AND DETAIL

SHEET: E-11
39 OF 45
JOB NO.: 14543
DWG: E_MSEWD



RELAY CONTACT ASSIGNMENTS AND FUNCTIONS

	"MOTOR FAULT" STATUS INDICATOR ACTIVE ON FAULT CONDITIONS (SEE NOTE G.3)
	ELAPSED TIME/COUNTER METER (SEE NOTE G.5)
1: 12.20 NA\ 2: NA NA\	STARTER ENCLOSURE FAN TIMER ENERGIZED ON MOTOR RUNNING (SEE TIMER TABLE, SEE NOTE V.6)
	"MOTOR RUNNING" STATUS INDICATOR (SEE NOTE G.3)
1: 12.22 NA\ 2: NA NA\	APPLY FILTER COMMAND RELAY ENERGIZED ON DRIVE CALL TO APPLY FILTER
1: 12.06 NA\ 2: NA NA\	CONTROL POWER VALID RELAY ENERGIZED ON VALID CONTROL POWER
1: NA 12.17\ 2: NA NA\	MOTOR WINDING OVERTEMP RELAY DE-ENERGIZED ON MOTOR OVERTEMP
1: 12.18 NA\ 2: 12.09 NA\	MOTOR WINDING OVERTEMP TIMER LATCH ON MOTOR OVERTEMP (SEE TIMER TABLE, SEE NOTE G.4)
	"MOTOR OVERTEMP" STATUS INDICATOR (SEE NOTE G.3)
	STARTER DRIVE COOLING FANS (TYP.) (SEE NOTE V.6)
1: FILTER PHASE A 2: FILTER PHASE B 3: FILTER PHASE C	LINE FILTER APPLICATION CONTACTOR ENERGIZED ON MOTOR RUNNING (REFERENCE HYBRID LINE FILTER, ONE LINE DIAGRAM)

NOTES:

1. REFERENCE MOTOR STARTER NOTES ON (–/E–11) WHERE:

   G.n = GENERAL MOTOR STARTER NOTES, AND
   V.n = VFD NOTES.

2. DRIVE CONTROL:

   a. THIS DRIVE SHALL SHUT DOWN ON DI4 = TRUE (MOTOR WINDING OVERTEMP) REGARDLESS OF THE STATUS OF THE HOA SWITCH OR PLC RUN COMMAND, AND SHALL REMAIN SHUT DOWN UNTIL THE OVERTEMP CIRTCUIT IS MANUALLY RESET.

   b. WHEN CALLED TO RUN, WHETHER FROM HAND OR AUTO, EACH DRIVE WILL BE INDEPENDENTLY DELAYED AS SHOWN IN THE TIMER TABLE "START DELAYS". IN AUTO, THESE DELAYS WILL BE PROGRAMMED INTO THE PLC. IN HAND, THE DELAYS SHALL BE CONFIGURED WITHIN THE DRIVE.

   c. IN AUTO, THE RUN COMMAND AND SPEED REFERENCE SHALL BE DERIVED FROM THE PLC OVER THE PROFINET NETWORK. IN HAND, THE RUN COMMAND COMES FROM THE SELECTOR SWITCH (ACTIVATION OF DI2) AFTER THE CONFIGURED HAND DELAY, WITH THE SPEED REFERENCE DERIVED FROM THE HIM.

OUTPUT CONTROL TABLE

DEVICE	OUTPUT	FUNCTION	DERIVED FROM
01 VFD XX	DO1A, DO1B	FAULT CONDITION	VFD DRIVE
01 VFD XX	DO2A, DO2B	RUNNING STATUS	PLC
01 VFD XX	DO3A, DO3B	APPLY FILTER COMMAND	VFD DRIVE

TIMER TABLE

TIMER	FUNCTION	TYPE	MINIMUM RANGE	INITIAL SETTING
TR12.05.XX	STARTER ENCLOSURE FAN DELAY	TDAD	0–60 MINUTES	30 MINUTES
HAND_DELAY.01	START DELAY	TDAE	– – –	1 SECOND
HAND_DELAY.02	START DELAY	TDAE	– – –	3 SECONDS
TR12.17.XX	OVERTEMP DELAY	TDAE	0–10 SECONDS	1 SECOND

ASSIGNMENT TABLE

XX	TAG	DESCRIPTION
01	[01 MS 01]	MOTOR STARTER, BOOSTER PUMP NO. 1
02	[01 MS 02]	MOTOR STARTER, BOOSTER PUMP NO. 2

1/– BOOSTER PUMP MOTOR STARTER ELEMENTARY WIRING DIAGRAM

NOT TO SCALE

0 1" 2"
TWO INCHES AT FULL SCALE.
IF NOT, SCALE ACCORDINGLY

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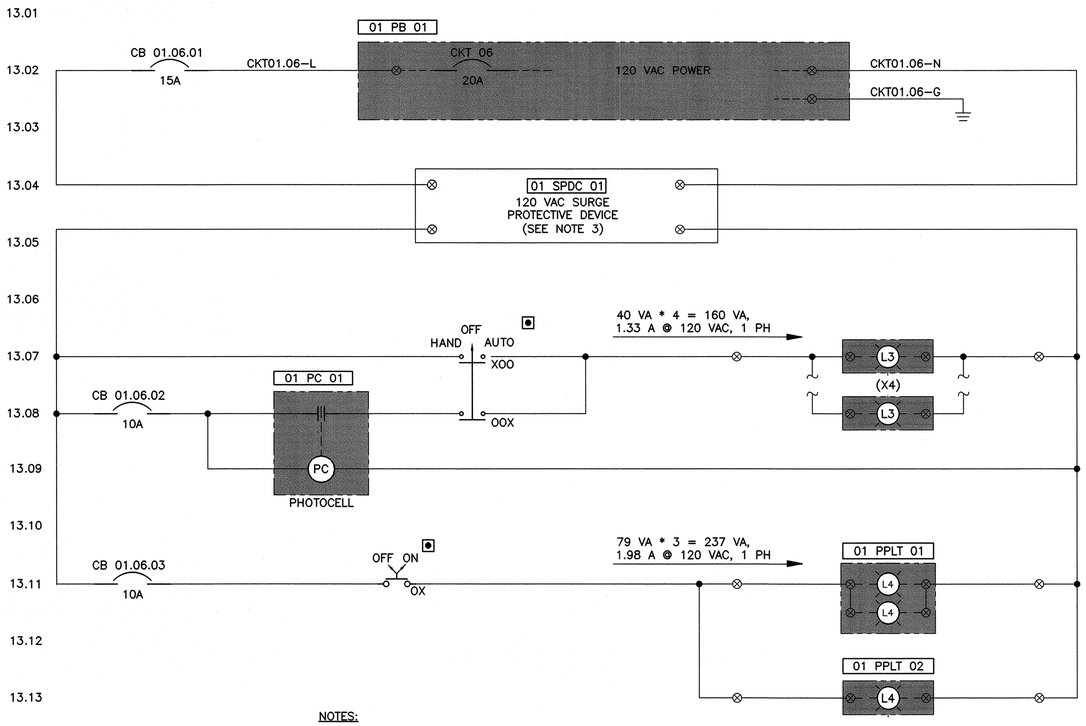
No.	REVISION	DATE	APPD

JOHN P. GALLUCCI — STATE OF WASHINGTON — 4050 — REGISTERED PROFESSIONAL ENGINEER — 4/22/15

CITY OF ISSAQUAH
KING COUNTY WASHINGTON
MOUNT HOOD BOOSTER STATION
MOTOR STARTER ELEMENTARY WIRING DIAGRAM

SHEET: E-12
40 OF 45
JOB NO.: 14543
DWG: E_MSEWD



RELAY CONTACT ASSIGNMENTS

RELAY CONTACT ASSIGNMENT TABLES

[01 BLDG 01] OUTDOOR LIGHTING

PHOTOCELL [01 PC 01]
(SEE NOTE 4)

POLE LIGHT [01 PPLT 01]

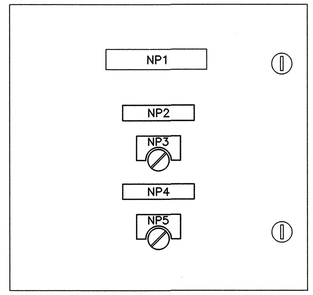
POLE LIGHT [01 PPLT 02]

NOTES:

1. REFERENCE SPECIFICATIONS.
2. REFERENCE LIGHTING SCHEDULE (–/E-2).
3. SURGE PROTECTIVE DEVICE IS 120 VAC, 40 kA; 1" WIDE, DIN-RAIL; INNOVATIVE TECHNOLOGY #HS-DIN-120 OR EQUIVALENT.
4. PHOTOCELL SHALL BE 120 VAC, -40 TO 158 DEGREES FARENHEIT, UL LISTED, INTERMATIC K4221C.

EXTERIOR LIGHTING CONTROL PANEL [01 CP 02] CONNECTION DIAGRAM

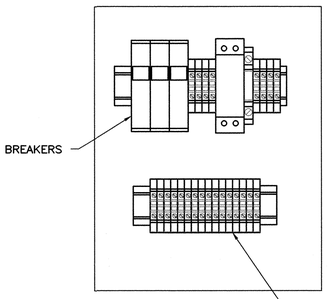
1/– NOT TO SCALE



CONTROL PANEL DOOR SCHEDULE	
NAME PLATE	NAME PLATE ENGRAVING
NP1	EXTERIOR LIGHTING CONTROL PANEL [01 CP 02]
NP2	BLDG LIGHTING
NP3	ON OFF AUTO
NP4	POLE LIGHTING
NP5	OFF – ON

CONTROL PANEL [01 CP 02] FRONT PANEL SCHEDULE

2/– NOT TO SCALE



NOTES:

1. CONTROL PANEL [01 CP 02] SHALL BE NEMA 1.
2. THIS ELEVATION IS INTENDED TO SHOW A GENERAL INTERIOR LAYOUT. ACTUAL DEVICE SELECTION AND MOUNTING SHALL REPRESENT A LAYOUT THAT ALLOWS [01 CP 02] TO BE 8" W X 12" H MAXIMUM WHILE MEETING MATERIAL SPECIFICATIONS.
3. [01 CP 02] SHALL BE UL508 LABELED.

CONTROL PANEL [01 CP 02] INTERIOR ELEVATION

3/– NOT TO SCALE

0 1" 2"
TWO INCHES AT FULL SCALE.
IF NOT, SCALE ACCORDINGLY

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No.	REVISION	DATE	APPD

JOHN P. GALLUCCI — STATE OF WASHINGTON — 40554 — REGISTERED PROFESSIONAL ENGINEER — 5/12/15

CITY OF ISSAQUAH
KING COUNTY WASHINGTON
MOUNT HOOD BOOSTER STATION
EXTERIOR LIGHTING CONTROL PANEL [01 CP 02] CONNECTION DIAGRAM AND DETAILS

SHEET: E-13
41 OF 45
JOB NO.: 14543
DWG: E_FPCD

SLOT 00		ANALOG INPUT CARD, 4 CHANNEL, ISOLATED, 16-BIT, 4-20 mA		
CHANNEL		TAG NUMBER	TAG DESCRIPTION	I/O FUNCTION
NO.	ADDRESS			
0	00:00	01 FIT 01	FLOW INDICATOR/TRANSMITTER, DISCHARGE	
1	00:01	01 FIT 02	FLOW INDICATOR/TRANSMITTER, BYPASS	
2	00:02	01 PT 01	PRESSURE TRANSDUCER, SUCTION	
3	00:03	01 PT 02	PRESSURE TRANSDUCER, DISTRIBUTION	

SLOT 01		ANALOG INPUT CARD, 4 CHANNEL, ISOLATED, 16-BIT, 4-20 mA		
CHANNEL		TAG NUMBER	TAG DESCRIPTION	I/O FUNCTION
NO.	ADDRESS			
0	01:00	01 LT 01	LEVEL TRANSDUCER, TANK LEVEL	
1	01:01	01 CLA 01	CHLORINE ANALYZER (FUTURE)	CHLORINE LEVEL
2	01:02	01 CLA 01	CHLORINE ANALYZER (FUTURE)	PH
3	01:03	01 CLA 01	CHLORINE ANALYZER (FUTURE)	TEMPERATURE

SLOT 02		DIGITAL INPUT CARD, 16 CHANNEL, 24 VDC		
CHANNEL		TAG NUMBER	TAG DESCRIPTION	I/O FUNCTION
NO.	ADDRESS			
0	02:00	01 MCB 01A	MCC BREAKER, UTILITY SERVICE, KIRK-KEY	TRUE = BREAKER CLOSED
1	02:01	01 MCB 01B	MCC BREAKER, GENERATOR, KIRK-KEY	TRUE = BREAKER CLOSED
2	02:02	01 SPD 01	SURGE PROTECTIVE DEVICE	TRUE = NORMAL; FALSE = FAULTED
3	02:03	01 OFFS 01	OVERFLOW SWITCH, RESERVOIR	TRUE = TANK OVERFLOW
4	02:04	01 FLD 01	FLOOD SWITCH, BOOSTER STATION	TRUE = VAULT FLOODED
5	02:05	01 SD 01	SMOKE DETECTOR	TRUE = SAFE, FALSE = SMOKE/FIRE
6	02:06	01 FIT 01	FLOW INDICATOR/TRANSMITTER, DISCHARGE	FLOW TOTALIZING PULSE
7	02:07	01 FIT 02	FLOW INDICATOR/TRANSMITTER, BYPASS	FLOW TOTALIZING PULSE
8	02:08	01 LS 01	LIMIT SWITCH, BYPASS VALVE PRESSURE RELEASE	TRUE = BYPASS VALVE FULLY CLOSED
9	02:09	01 IS 01	INTRUSION SWITCH, WEST MANDOOR	TRUE = SECURE, FALSE = ENTRY
10	02:10	01 IS 02	INTRUSION SWITCH, EAST DOUBLE-DOOR	TRUE = SECURE, FALSE = ENTRY
11	02:11	01 IS 03	INTRUSION SWITCH, RESERVOIR, ROOF HATCH	TRUE = SECURE, FALSE = ENTRY
12	02:12	01 IS 04	INTRUSION SWITCH, RESERVOIR, LADDER (FUTURE)	TRUE = SECURE, FALSE = ENTRY
13	02:13	01 IS 05	INTRUSION SWITCH, VALVE VAULT (FUTURE)	TRUE = SECURE, FALSE = ENTRY
14	02:14	01 IS 06	INTRUSION SWITCH, DECHLORINATION (FUTURE)	TRUE = SECURE, FALSE = ENTRY
15	02:15	01 CLA 01	CHLORINE ANALYZER (FUTURE)	TRUE = ANALYZER FAULT

SLOT 03		DIGITAL INPUT CARD, 16 CHANNEL, 24 VDC		
CHANNEL		TAG NUMBER	TAG DESCRIPTION	I/O FUNCTION
NO.	ADDRESS			
0	03:00	01 FLD 01	FLOOD SWITCH, VALVE VAULT	TRUE = VAULT FLOODED
1	03:01			
2	03:02			
3	03:03			
4	03:04			
5	03:05			
6	03:06			
7	03:07			
8	03:08			
9	03:09			
10	03:10			
11	03:11			
12	03:12			
13	03:13			
14	03:14			
15	03:15			

SLOT 04		DIGITAL OUTPUT CARD, 16 CHANNEL, 24 VDC		
CHANNEL		TAG NUMBER	TAG DESCRIPTION	I/O FUNCTION
NO.	ADDRESS			
0	04:00	01 CP 01	CONTROL PANEL, PLC	TRUE = RESET SMOKE DETECTOR
1	04:01			
2	04:02			
3	04:03			
4	04:04			
5	04:05			
6	04:06			
7	04:07			
8	04:08			
9	04:09			
10	04:10			
11	04:11			
12	04:12			
13	04:13			
14	04:14			
15	04:15			

[01 PLC 01] EXTENDED PLC I/O TABLES

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JOHN P. GALLICCI — STATE OF WASHINGTON — REGISTERED PROFESSIONAL ENGINEER — 40555 — 4/21/15

CITY OF ISSAQUAH
KING COUNTY WASHINGTON
MOUNT HOOD BOOSTER STATION
[01 PLC 01] EXTENDED PLC I/O TABLES

SHEET: E-14
42 OF 45
JOB NO.: 14543
DWG: E_PLCIO

POWER CABLE AND CONDUIT SCHEDULE

NUMBER	SOURCE	DESTINATION	SIZE	CONDUCTORS	NOTES	
P0101	[01 UT 01], UTILITY TRANSFORMER	[01 SDS 01], SAFETY DISCONNECT SWITCH, UTILITY SERVICE	2"	3X #3/0 AWG XHHW-2; 1X #4 AWG XHHW-2 N		
P0102	[01 SDS 01], SAFETY DISCONNECT SWITCH, UTILITY SERVICE	[01 MB 01], UTILITY METER BASE	2"	3X #3/0 AWG XHHW-2; 1X #4 AWG XHHW-2 N; 1X #6 AWG XHHW-2 G		
P0103	[01 MB 01], UTILITY METER BASE	[01 MCB 01A], MCC BREAKER, UTILITY SERVICE, KIRK-KEY	2"	3X #3/0 AWG XHHW-2; 1X #4 AWG XHHW-2 N; 1X #6 AWG XHHW-2 G		
P0104	[01 GREC 01], GENERATOR RECEPTACLE, 200 A, 480 VAC, 3 PH	[01 MCB 01B], MCC BREAKER, GENERATOR, KIRK-KEY	2"	3X #3/0 AWG XHHW-2; 1X #6 AWG XHHW-2 G		
P0105	[01 MS 01], MOTOR STARTER, PUMP NO. 1 MOTOR	[01 MTR 01], MOTOR, PUMP NO. 1	1"	3X #4 AWG XHHW-2; 1X #4 AWG XHHW-2 G	* 1	MOTOR LEADS AND GROUND ARE OVERSIZED.
P0106	[01 MS 02], MOTOR STARTER, PUMP NO. 2 MOTOR	[01 MTR 02], MOTOR, PUMP NO. 2	1"	3X #4 AWG XHHW-2; 1X #4 AWG XHHW-2 G	* 1	MOTOR LEADS AND GROUND ARE OVERSIZED.
P0107	[01 PB 01], PANELBOARD, 208/120 VAC, 3 PH	[01 CP 01], CONTROL PANEL, PLC	3/4"	2X #12 AWG XHHW-2; 2X #12 AWG XHHW-2 N; 1X #12 AWG XHHW-2 G; 1X #10 AWG XHHW G		
P0108	[01 MCB 03], MCC BREAKER, FOR [01 HT 01]	[01 SDS 02], SAFETY DISCONNECT SWITCH, UNIT HEATER	3/4"	3X #12 AWG XHHW-2; 1X #12 AWG XHHW-2 G		
P0109	[01 SDS 02], SAFETY DISCONNECT SWITCH, UNIT HEATER	[01 HT 01], UNIT HEATER	3/4"	3X #12 AWG XHHW-2; 1X #12 AWG XHHW-2 G		
P0110	[01 PB 01], PANELBOARD, 208/120 VAC, 3 PH	[01 SDS 04], SAFETY DISCONNECT SWITH, EXHAUST FAN	3/4"	3X #12 AWG XHHW-2; 1X #12 AWG XHHW-2 N; 1X #12 AWG XHHW-2 G		POWER TO 208 VAC, 1PH FAN PLUS 120 VAC DAMPER.
P0111	[01 SDS 04], SAFETY DISCONNECT SWITH, EXHAUST FAN	J-BOX JP0111	3/4"	3X #12 AWG XHHW-2; 1X #12 AWG XHHW-2 N; 1X #12 AWG XHHW-2 G		POWER TO 208 VAC, 1PH FAN PLUS 120 VAC DAMPER.
P0111A	J-BOX JP0111	[01 EF 01], EXHAUST FAN	3/4"	2X #12 AWG XHHW-2; 1X #12 AWG XHHW-2 G; 2X #12 AWG XHHW, 1X 3-C, 1-TT, #18 AWG, OS		INCLUDES DAMPER ON/OFF CONTROL.
P0111B	J-BOX JP0111	[01 SDS 03], SAFETY DISCONNECT SWITCH, MOTORIZED DAMPER	3/4"	1X #12 AWG XHHW-2; 1X #12 AWG XHHW-2 N; 1X #12 AWG XHHW-2 G		
P0112	[01 SDS 03], SAFETY DISCONNECT SWITCH, MOTORIZED DAMPER	[01 MD 01], MOTORIZED DAMPER	3/4"	1X #12 AWG XHHW-2; 1X #12 AWG XHHW-2 N; 1X #12 AWG XHHW-2 G		
P0113	[01 PB 01], PANELBOARD, 208/120 VAC, 3 PH	[01 DREC 02], DEDICATED RECEPTACLE, DEHUMIDIFIER	3/4"	1X #12 AWG XHHW-2; 1X #12 AWG XHHW-2 N; 1X #12 AWG XHHW-2 G		
P0114	[01 PB 01], PANELBOARD, 208/120 VAC, 3 PH	[01 CREC 02], CONVENIENCE RECEPTACLE EXTERIOR, WEST	1/2"	2X #12 AWG XHHW-2; 2X #12 AWG XHHW-2 N; 1X #12 AWG XHHW-2 G		
P0115	[01 PB 01], PANELBOARD, 208/120 VAC, 3 PH	[01 CREC 01], CONVENIENCE RECEPTACLE EXTERIOR, NORTH	3/4"	1X #12 AWG XHHW-2; 1X #12 AWG XHHW-2 N; 1X #12 AWG XHHW-2 G		
P0116	[01 PB 01], PANELBOARD, 208/120 VAC, 3 PH	[01 DREC 01], DEDICATED RECEPTACLE, SECURITY RACK, AND NE RECPTACLES	1/2"	2X #12 AWG XHHW-2; 2X #12 AWG XHHW-2 N; 1X #12 AWG XHHW-2 G		
P0117	[01 PB 01], PANELBOARD, 208/120 VAC, 3 PH	INTERIOR LIGHTING	1/2"	1X #12 AWG XHHW-2; 1X #12 AWG XHHW-2 N; 1X #12 AWG XHHW-2 G		
P0118	[01 PB 01], PANELBOARD, 208/120 VAC, 3 PH	[01 CP 02], CONTROL PANEL, EXTERIOR LIGHTING	3/4"	1X #12 AWG XHHW-2; 1X #12 AWG XHHW-2 N; 1X #12 AWG XHHW-2 G		
P0119	[01 CP 02], CONTROL PANEL, EXTERIOR LIGHTING	[01 HH 01], HANDHOLE, LIGHTING	3/4"	1X #12 AWG XHHW-2; 1X #12 AWG XHHW-2 N; 1X #12 AWG XHHW-2 G		
P0119A	[01 HH 01], HANDHOLE, LIGHTING	[01 PPLT 01], POLE LIGHT, NORTH	3/4"	1X #12 AWG XHHW-2; 1X #12 AWG XHHW-2 N; 1X #12 AWG XHHW-2 G		
P0120	[01 CP 02], CONTROL PANEL, EXTERIOR LIGHTING	[01 HH 02], HANDHOLE, LIGHTING	3/4"	1X #12 AWG XHHW-2; 1X #12 AWG XHHW-2 N; 1X #12 AWG XHHW-2 G		
P0120A	[01 HH 02], HANDHOLE, LIGHTING	[01 PPLT 02], POLE LIGHT, SOUTHEAST	3/4"	1X #12 AWG XHHW-2; 1X #12 AWG XHHW-2 N; 1X #12 AWG XHHW-2 G		
P0121	[01 CP 02], CONTROL PANEL, EXTERIOR LIGHTING	J-BOX JP0121, EXTERIOR BUILDING LIGHTS	3/4"	1X #12 AWG XHHW-2; 1X #12 AWG XHHW-2 N; 1X #12 AWG XHHW-2 G		
P0122	[01 CP 01], CONTROL PANEL, PLC	STUB-UP 12" FOR FUTURE CHLORINE ANALYZER [01 CLA 01]	3/4"	PULL WIRE		SPARE CONDUIT.
P0123	[01 MCC 01], MOTOR CONTROL CENTER	[01 PBX 01], PULLBOX	1"	PULL WIRE		SPARE CONDUIT.
P0124	[01 MCC 01], MOTOR CONTROL CENTER	[01 PBX 01], PULLBOX	2"	PULL WIRE		SPARE CONDUIT.
P0125	[01 PB 01], PANELBOARD, 208/120 VAC, 3 PH	[01 AB 01], ALARM BEACON	1/2"	1X #12 AWG XHHW-2; 1X #12 AWG XHHW-2 N; 1X #12 AWG XHHW-2 G		

CONTROL CABLE AND CONDUIT SCHEDULE

NUMBER	SOURCE	DESTINATION	SIZE	CONDUCTORS	NOTES	
C0101	[01 MS 01], MOTOR STARTER, PUMP NO. 1 MOTOR	[01 MTR 01], MOTOR, PUMP NO. 1	3/4"	2X #14 AWG XHHW-2		
C0102	[01 MS 02], MOTOR STARTER, PUMP NO. 2 MOTOR	[01 MTR 02], MOTOR, PUMP NO. 2	3/4"	2X #14 AWG XHHW-2		
C0103	[01 CP 01], CONTROL PANEL, PLC	[01 LS 01], LIMIT SWITCH, BYPASS VALVE PRESSURE RELEASE	3/4"	2X #14 AWG XHHW-2; 1X #12 AWG XHHW-2 G		
C0104	[01 CP 02], CONTROL PANEL, EXTERIOR LIGHTING	[01 PC 01], PHOTCELL FOR LIGHTING PANEL [01 CP 02]	1/2"	1X #12 AWG XHHW-2; 1X #12 AWG XHHW-2 N; 1X #12 AWG XHHW-2 G; 1X #14 AWG XHHW-2		
C0105	[01 CP 01], CONTROL PANEL, PLC	[01 SD 01], SMOKE DETECTOR	3/4"	8X #14 AWG XHHW-2		ALL CIRCUITS ARE 24 VDC
C0105A	[01 SD 01], SMOKE DETECTOR	J-BOX JS0105A	1/2"	2X #14 AWG XHHW-2		PICKS UP [01 IS 01].
C0105B	[01 SD 01], SMOKE DETECTOR	J-BOX JS0105B	1/2"	2X #14 AWG XHHW-2		PICKS UP [01 IS 02].
C0106	[01 HT 01], UNIT HEATER	[01 T 02], THERMOSTAT, UNIT HEATER	1/2"	2X #14 AWG XHHW-2; 1X #12 AWG XHHW-2 G		
C0107	J-BOX JP0111	[01 T 01], THERMOSTAT, EXHAUST FAN	1/2"	1X 3-C, 1-TT, #18 AWG, OS		
C0108	[01 TP 01], TELEPHONE PEDESTAL	[01 CP 01], CONTROL PANEL, PLC	2"	1X 12-C, 6-TP PHONE CABLE		
C0109	[01 CP 01], CONTROL PANEL, PLC	[01 PBX 01], PULLBOX	3/4"	8X #14 AWG XHHW-2; 1X #12 AWG XHHW-2 G		PICKS UP EXISTING [01 OFS 01] AND [01 IS 03] PLUS 2X SPARES FOR FUTURE LADDER IN JC0109A PLUS 2X SPARES IN JS0109A.
C0109A	[01 PBX 01], PULLBOX	J-BOX JC0109A	3/4"	8X #14 AWG XHHW-2; 1X #12 AWG XHHW-2 G		COIL 12" OF 2X #14 AWG SPARES IN JC0109A FOR FUTURE LADDER GUARD INSTRUSION SWITCH [01 IS 04].
C0109B	J-BOX JC0109A	J-BOX JS0109A	3/4"	6X #14 AWG XHHW-2; 1X #12 AWG XHHW-2 G		COIL 12" OF 2X #14 AWG SPARES IN JS0109A
C0110	[01 CP 01], CONTROL PANEL, PLC	[01 PBX 01], PULLBOX	2"	PULL WIRE		SPARE CONDUIT.
C0111	[01 CP 01], CONTROL PANEL, PLC	[01 PBX 01], PULLBOX	2"	PULL WIRE		SPARE CONDUIT.
C0112	[01 CP 01], CONTROL PANEL, PLC	[01 FLD 01], FLOOD SWITCH, BOOSTER STATION		2X #14 AWG XHHW-2; 1X #12 AWG XHHW-2 G		
C0113	[01 CP 01], CONTROL PANEL, PLC	[01 SEC 01], SECURITY RACK	2"	PULL WIRE		SPARE CONDUIT.

INSTRUMENTATION CABLE AND CONDUIT SCHEDULE

NUMBER	SOURCE	DESTINATION	SIZE	CONDUCTORS	NOTES	
S0101	[01 CP 01], CONTROL PANEL, PLC	[01 FIT 01], FLOW INDICATOR/TRANSMITTER, DISCHARGE	1"	1X 4-C, 2-TP, #18 AWG, IS/OS; 1X 2-C, 1-TP, #18 AWG, OS	* 3	INSTANTANEOUS AND TOTALIZED FLOW. 24 VDC POWERED. CONDUIT OVERSIZED.
S0102	[01 CP 01], CONTROL PANEL, PLC	[01 FIT 02], FLOW INDICATOR/TRANSMITTER, BYPASS	1"	1X 4-C, 2-TP, #18 AWG, IS/OS; 1X 2-C, 1-TP, #18 AWG, OS	* 3	INSTANTANEOUS AND TOTALIZED FLOW. 24 VDC POWERED. CONDUIT OVERSIZED.
S0103	[01 CP 01], CONTROL PANEL, PLC	[01 PT 01], PRESSURE TRANSDUCER, SUCTION	3/4"	1X 2-C, 1-TP, #18 AWG, OS	* 3	LOOP POWERED.
S0104	[01 CP 01], CONTROL PANEL, PLC	[01 PT 02], PRESSURE TRANSDUCER, DISTRIBUTION	3/4"	1X 2-C, 1-TP, #18 AWG, OS	* 3	LOOP POWERED.
S0105	[01 CP 01], CONTROL PANEL, PLC	[01 MCC 01], MOTOR CONTROL CENTER	1-1/4"	PROFIBUS CABLES	* 3	
S0106	[01 CP 01], CONTROL PANEL, PLC	STUB-UP 12" FOR FUTURE CHLORINE ANALYZER [01 CLA 01]	3/4"	PULL WIRE	* 3	SPARE CONDUIT.
S0107	[01 SEC 01], SECURITY RACK	[01 PPLT 01], POLE LIGHT, NORTH	1-1/4"	1X #12 AWG XHHW-2 G; 2X 1-BC COAX, 2-C, 1-TP, #18 AWG; 2X 8-C, 4-TP, #24 AWG, CAT5E, OS	* 3	PICKS UP [01 CAM 01] AND [01 CAM 02].
S0108	[01 SEC 01], SECURITY RACK	[01 PPLT 02], POLE LIGHT, SOUTHEAST	1"	1X #12 AWG XHHW-2 G; 1X 1-BC COAX, 2-C, 1-TP, #18 AWG; 1X 8-C, 4-TP, #24 AWG, CAT5E, OS	* 3	PICKS UP [01 CAM 03].
S0109	[01 CP 01], CONTROL PANEL, PLC	J-BOX JS0109 INSIDE [01 PBX 01]	3/4"	1X 2-C, 1-TP, #18 AWG, OS	* 3	LOOP POWERED.
S0109A	J-BOX JS0109 INSIDE [01 PBX 01]	J-BOX JS0109A AT THE TOP OF THE TANK	3/4"	1X 2-C, 1-TP, #18 AWG, OS	* 3	LOOP POWERED.
S0110	[01 CP 01], CONTROL PANEL, PLC	J-BOX JS0110 IN PULLBOX [01 PBX 01]	1"	PULL WIRE	* 3	SPARE CONDUIT.
S0111	[01 CP 01], CONTROL PANEL, PLC	J-BOX JS0110 IN PULLBOX [01 PBX 01]	1"	PULL WIRE	* 3	SPARE CONDUIT.

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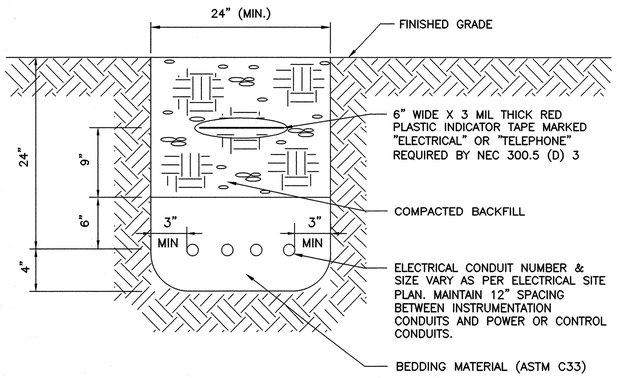
No.	REVISION	DATE	APPD

JOHN P. GALLUCCI, STATE OF WASHINGTON, 40552, REGISTERED PROFESSIONAL ENGINEER
4/22/15

CITY OF ISSAQUAH
KING COUNTY WASHINGTON
MOUNT HOOD BOOSTER STATION
CABLE AND CONDUIT SCHEDULES

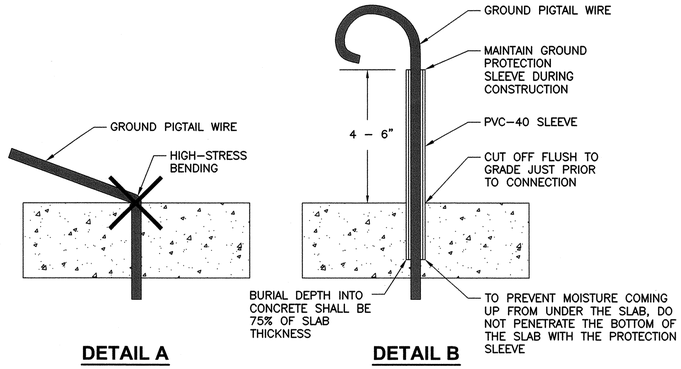
JOB NO.: 14543
DWG: E_CCS



NOTE:

1. SPACING BETWEEN CONDUITS AND OTHER UTILITIES SHALL BE IN COMPLIANCE WITH THE UTILITIES OR 24 INCHES MINIMUM, WHICHEVER IS THE GREATER.

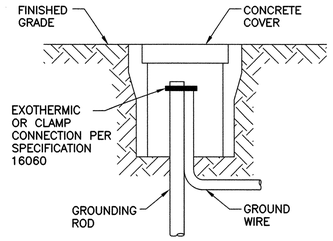
1 TYP **ELECTRICAL TRENCHING DETAIL**
NOT TO SCALE



NOTES:

1. BARE COPPER GROUND WIRES SHALL NOT PENETRATE DIRECTLY OUT OF CONCRETE FLOORS. CONSTRUCTION ACTIVITIES CAN CAUSE TIGHT WIRE BENDING AND POSSIBLE GROUND WIRE DEGRADATION. DETAIL "A" IS NOT ACCEPTABLE.
2. PROTECT THE GROUND PIGTAIL DURING CONSTRUCTION WITH A PVC-40 SLEEVE INSTALLED AS DESCRIBED IN DETAIL "B".
3. JUST PRIOR TO SETTING EQUIPMENT OVER, OR MAKING THE FINAL CONNECTION OF THE GROUND WIRE, CUT OFF THE SLEEVE FLUSH TO THE FLOOR TAKING CARE NOT TO CUT INTO THE GROUND WIRE.

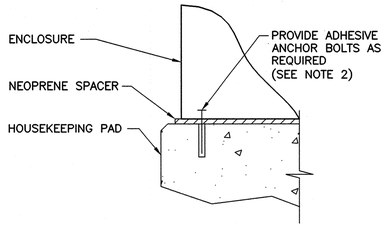
2 TYP **GROUND PIGTAIL CONTRUCTION PROTECTION SLEEVE DETAIL**
NOT TO SCALE



NOTES:

1. GROUND ROD BOX SHALL BE FOGTITE GROUND ROD BOX WITH ROAD RATING EQUAL TO THE DEVICE OR STRUCTURE IT SUPPORTS (H20 MINIMUM).

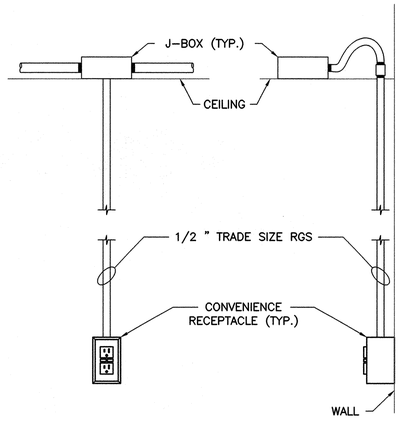
3 TYP **GROUND ROD BOX DETAIL**
NOT TO SCALE



NOTES:

1. PROVIDE A 1/8" NEOPRENE SPACER BETWEEN THE ENCLOSURE BASE PLATE AND THE CONCRETE SURFACE. OVERSIZE THE SPACER BY 1/4" ON ALL SIDES. EPOXY THE SPACER TO THE BOTTOM OF THE BASE PLATE PRIOR TO INSTALLATION.
2. ANCHOR BOLTS AND HARDWARE SHALL BE 1/2"ø 316L STAINLESS STEEL WITH 3" EMBEDMENT.

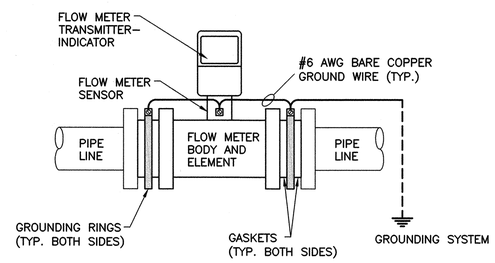
4 TYP **FREE-STANDING ENCLOSURE HOUSEKEEPING PAD MOUNTING DETAIL**
NOT TO SCALE



NOTES:

1. PROVIDE J-BOXES IN THE ATTIC, THAT ARE EITHER ACCESSIBLE WITHIN THE ATTIC OR FROM THE CEILING, FOR RECEPTACLES AND LIGHT SWITCHES. RUN A SINGLE VERTICAL 1/2" TRADE SIZE RGS CONDUIT FROM THE ATTIC DOWN TO EACH RECEPTACLE AND LIGHT SWITCH DEVICE BOX.

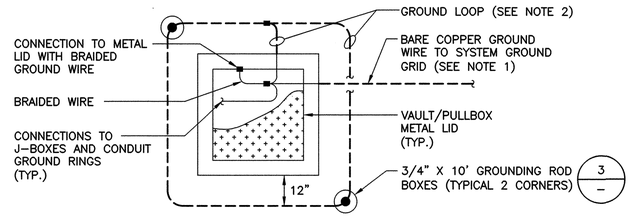
5 TYP **SURFACE MOUNT RECEPTACLE DETAIL**
NOT TO SCALE



NOTES:

1. CONTRACTOR SHALL PROVIDE AND INSTALL INSULATING GASKETS AND MANUFACTURER'S GROUND RINGS TO EACH SIDE OF THE FLOW METER BODY. THE GROUND RINGS AND FLOW METER SENSOR SHALL BE TIED TO THE SYSTEM GROUND WITH A #6 AWG GROUNDING WIRE. CONNECT AS SHOWN OR PER MANUFACTURER'S REQUIREMENTS.

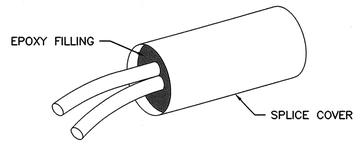
6 TYP **FLOW METER GROUNDING DETAIL**
NOT TO SCALE



NOTES:

1. PROVIDE AND SIZE GROUND CONDUCTOR FROM SYSTEM GROUND DISTRIBUTION PER – / E-5.
2. PROVIDE BARE COPPER GROUND LOOP AROUND THE VAULT/PULLBOX 12-INCHES OUT AND 12-INCHES DEEP.
3. GROUND ALL METAL COMPONENTS AS PER "VAULT AND PULLBOX GROUNDING" IN SPECIFICATION 16060.
4. ALL GROUND CONDUCTORS SHALL BE STRANDED WITH THE EXCEPTION OF THE FLEXIBLE BRAIDED GROUND CONDUCTOR TO THE METAL HATCH LIDS.

7 TYP **METAL LID GROUNDING DETAIL**
NOT TO SCALE



NOTES:

1. PROVIDE CRIMPED SPLICE INSIDE THE SLICE COVER.
2. FILL WITH EXOPY PER MANUFACTURER'S RECOMMENDATIONS.
3. SUBMERGE THE SPLICE AND TEST FOR WATER-TIGHT INTEGRITY.

8 TYP **WATER-TIGHT EXPOXIED SPLICE KIT DETAIL**
NOT TO SCALE

0 1" 2"
TWO INCHES AT FULL SCALE.
IF NOT, SCALE ACCORDINGLY

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JOHN P. GALLUCCI — STATE OF WASHINGTON — 40352 — REGISTERED PROFESSIONAL ENGINEER — 4/22/15

CITY OF ISSAQUAH
WASHINGTON
KING COUNTY
MOUNT HOOD BOOSTER STATION
ELECTRICAL DETAILS

SHEET: ED-1
44 OF 45
JOB NO.: 14543
DWG: E_DET

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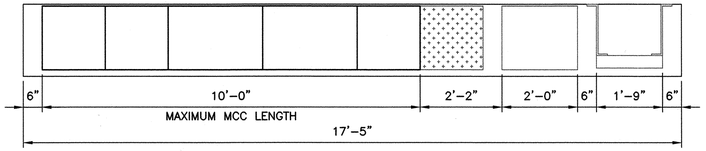
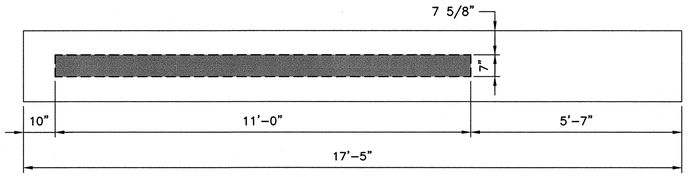
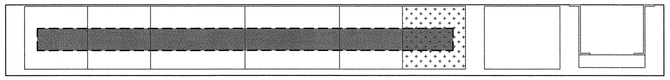


EQUIPMENT



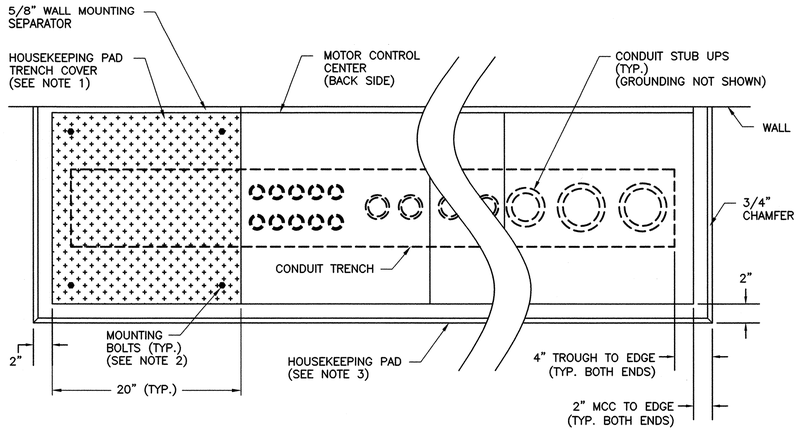
HOUSEKEEPING PAD



EQUIPMENT OVERLAY PLAN

1 TYP EQUIPMENT AND HOUSEKEEPING PAD PLANS

SCALE: 1/2" = 1'–0"

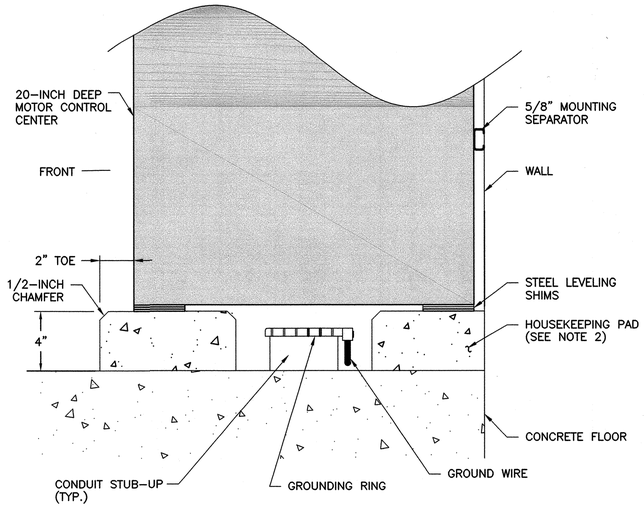


NOTES:

1. ON HOUSEKEEPING PADS THAT ARE EXTENDED FOR FUTURE MCC COLUMNS, THE EXPOSED PORTION OF THE HOUSEKEEPING PAD SHALL BE COVERED WITH A 1/4" ALUMINUM OR GALVANIZED STEEL DIAMOND PLATE. IF STEEL IS USED, THEN THE CONTRACTOR SHALL PAINT THE STEEL PLATE TO MATCH THE COLOR OF THE MCC. GROUND THE DIAMOND PLATE COVER AS PER NEC.
2. BOLT THE PLATE TO THE HOUSEKEEPING PAD WITH 4 X 3/8–INCH STAINLESS STEEL LAG BOLTS MINIMUM.
3. FOR CONCRETE DIMENSIONS AND REINFORCEMENT DETAILS, REFERENCE 1/– AND 1/S-3.

2 TYP OVERHEAD VIEW MCC HOUSEKEEPING PAD PLAN

NOT TO SCALE

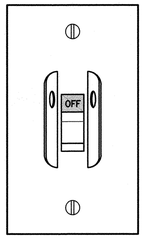


NOTES:

1. FOR MCCS DEEPER THAN 20 INCHES, EXTEND THE WIDTH OF THE FRONT CURB SUCH THAT THE 2–INCH TOE IS MAINTAINED. ALIGN THE MOUNTING CHANNEL TO THE EDGE OF THE MCC AS SHOWN.
2. FOR CONCRETE DIMENSIONS AND REINFORCEMENT DETAILS, REFERENCE 1/– AND 1/S-3.

3 TYP MCC HOUSEKEEPING PAD DETAIL

NOT TO SCALE

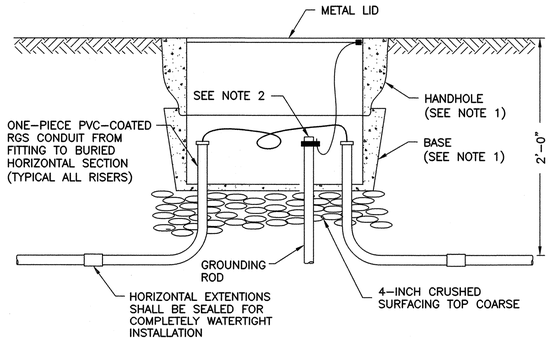


NOTES:

1. ALL HVAC POWER DEVICES SHALL BE CONNECTED THROUGH A SAFETY DISCONNECT SWITCH WITH A COVERPLATE THAT IS LOCKABLE IN THE OPEN POSITION.
2. SAFETY DISCONNECT SWITCHES THAT ARE WALL–MOUNTED SHALL BE RECESSED INTO THE WALL IN STANDARD DEVICE BOXES.
3. SAFETY DISCONNECT SWITCHES TO OUTDOOR EQUIPMENT OR EQUIPMENT MOUNTED ABOVE THE CEILING OR EQUIPMENT MOUNTED WITHIN SUSPENDED CEILINGS SHALL BE SURFACE MOUNTED IN CAST ALUMINUM DEVICE BOXES.
4. ALL HVAC SAFETY DISCONNECT SWITCHES SHALL BE TOGGLE–TYPE, 30 AMP, 600 VAC, 3 POLE, INDUSTRIAL GRADE, NON–GROUNDING, SIDE WIRED; MITSUBISHI ELECTRIC CATALOG NUMBER TAZ–MS303 OR EXACT EQUIVALENT.

4 TYP LOCKABLE SAFETY DISCONNECT SWITCH DETAIL

NOT TO SCALE

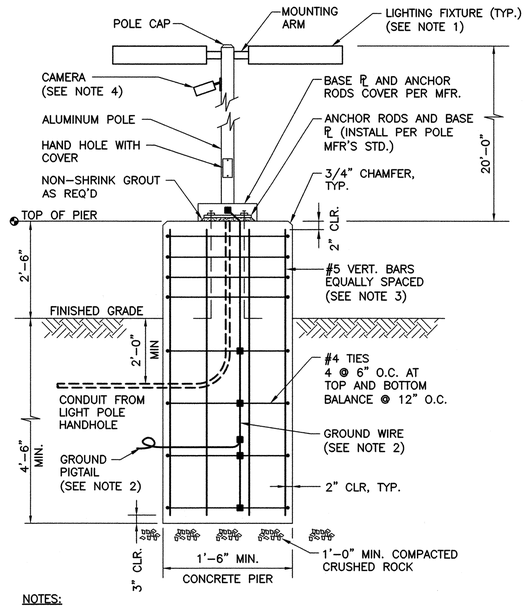


NOTES:

1. FOGTITE INC. #2SL HANDHOLE COMPLETE WITH GALVANIZED STEEL LID, RATED H–20 LOADING, WITH POSITIVE LOCK, AND WITH #2SL BASE. FURNISH AND INSTALL PULL BOX ASSEMBLY ON TOP OF 4–INCH THICK CRUSHED SURFACING TOP COURSE. PROVIDE LID WITH "POWER" LEGEND.
2. PROVIDE GROUND ROD AND BRAID INSIDE HANDHOLE WITH METAL PARTS OR METAL LID. REFERENCE SPECIFICATION 16060.

5 TYP HANDHOLE DETAIL

NOT TO SCALE

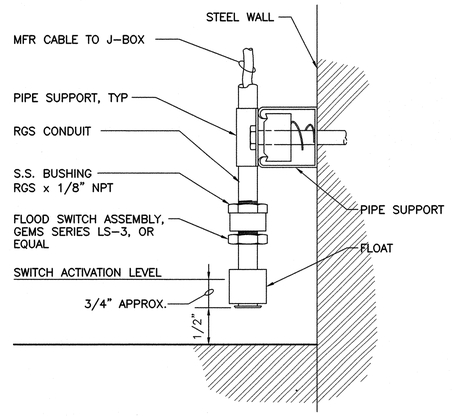


NOTES:

1. FOR DUAL–FIXTURE LIGHT POLES, OFFSET LIGHTS BY 180 DEGREES.
2. PROVIDE CONCRETE PIER WITH #4 AWG BARE COPPER GORUND WIRE WITH 24" EXTENSION FROM SIDE OF PIER.
3. USE ROUND PIER WITH 6 VERTICAL BARS MINIMUM OR SQUARE PIER WITH 8 VERTICAL BARS MINIMUM.
4. MOUNT CAMERAS 21' ABOVE GRADE.

6 TYP POLE LIGHT DETAIL

NOT TO SCALE



NOTES:

1. FLOOD SWITCH [01 FS 01] MANUFACTURE'S CABLE SHALL BE TERMINATED ON A TERMINAL STRIP IN AN ADJACENT J–BOX.

7 TYP FLOOD SWITCH DETAIL

NOT TO SCALE

0 1" 2"

TWO INCHES AT FULL SCALE. IF NOT, SCALE ACCORDINGLY

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CITY OF ISSAQUAH
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MOUNT HOOD BOOSTER STATION
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45 OF 45
JOB NO.: 14543
DWG: E_DET